'n this issue...

ap industry's meeting
study somber outlook

* * *

ethoxychlor synergist
osts insecticide's kill

* * *

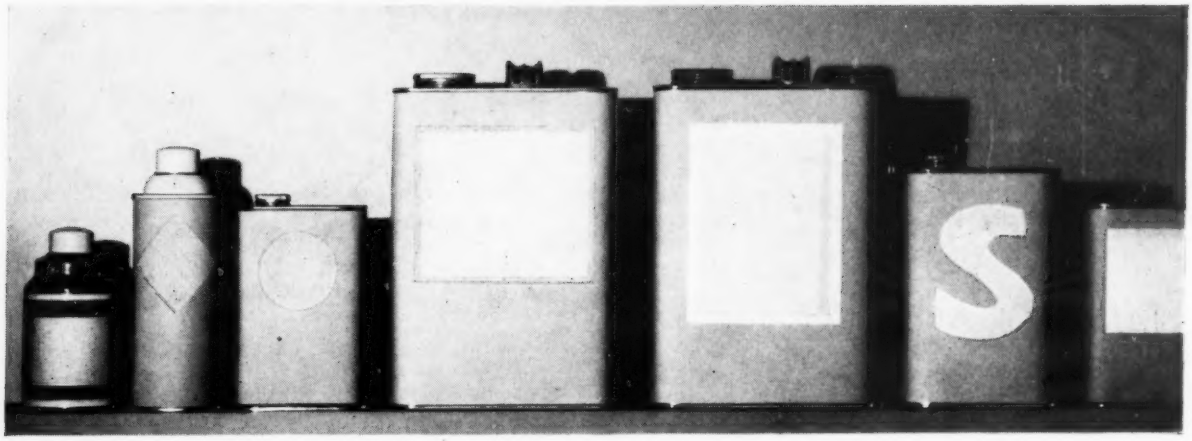
or waxes with lanolin
rivative rated better

* * *

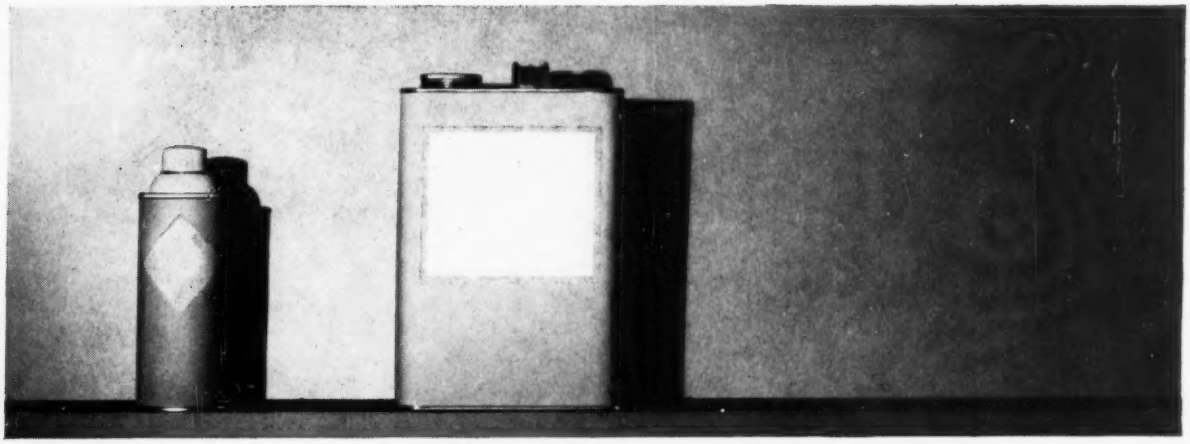
ray dried perfumes in
soaps and detergents

New "Velvetouch" hair shampoo of Jewel Tea Co., Melrose Park, Ill., comes packed in easy-grip bottle with massive, crown type plastic cap. Both bottle and cap are by W. Braun Co. Six-ounce bottle is distributed via home service routes in 42 states.

Paint Removers . . .



Sell FASTER when they are SAFE



SOLVAY METHYLENE CHLORIDE

IS NONFLAMMABLE! LOW IN TOXICITY! SURE!

This safe, efficient solvent makes formulations work best . . . sell best. Non-corrosive. Harmless to wood and metal. Gives uniformly superior performance in scrape-off, flush-off or aerosol type formulas.

Soda Ash • Caustic Soda • Calcium Chloride Chlorine • Potassium Carbonate • Sodium Bicarbonate • Caustic Potash • Chloroform Ammonium Bicarbonate • Cleaning Compounds Ammonium Chloride • Sodium Nitrite • Aluminum Chloride • Snowflake® Crystals • Methyl Chloride Monochlorobenzene • Para-dichlorobenzene • Vinyl Chloride • Ortho-dichlorobenzene • Hydrogen Peroxide Methylene Chloride • Carbon Tetrachloride

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SOLVAY PROCESS DIVISION
ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

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☐ Informative bulletins and articles on various paint solvents, thickeners and evaporation retarders.

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DM-1

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HIGHEST ACTIVITY – MORE ECONOMICAL THAN TECHNICAL GRADE CHELATES!

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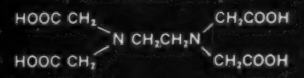
PERMA KLEER ACID is chemically PURE ethylene diamine tetra acetic acid, and has the structural formula;



SPECIFICATIONS

Appearance . . . Fine white crystals
Molecular weight . . . 292
Melting point . . . 240°C. (with decomposition)
Bulk Density . . . 0.68
pH, aqueous solution . . . 2.0
Solubility in water . . . 0.02%
% EDTA (precipitation method) . . . 98.5% min.
% EDTA (titration method) . . . 99.5% min.
% amino triacetic acid . . . 0.5% max.
$CaCO_3$ chelated per gram . . . 342 mgs.
Residue on ignition . . . 0.03% max.
Heavy metals . . . 5 ppm max.

TYPICAL SPECTROGRAPHIC ANALYSIS

Metal	Percentage
Sodium	0.02
Calcium	0.004
Potassium	0.003
Barium	0.003
Aluminum	0.001
Chromium	0.001
Iron	0.001
Silicon	0.0005
Copper	0.0003
Lead	0.0001
Magnesium	0.00003
Manganese	0.00001

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Volume XXXIV, No. 1 January, 1958

SOAP and CHEMICAL SPECIALTIES

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Published monthly by
MAC NAIR-DORLAND COMPANY, Inc.

IRA P. MAC NAIR
President

GRANT A. DORLAND
Vice President and Treasurer

Publication Office
254 W. 31st St., New York 1, N. Y.
Telephone: BRyant 9-4456

Chicago Office
333 N. Michigan Ave.

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MEMBER

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Official Publication: Chemical Specialties Manufacturers Assn.

Subscription rates: U. S., $4.00 per year; Canadian, $5.00; Foreign, $11.00 (2 years only). Copy closing dates — 15th of month preceding month of issue for reading matter and 5th of month preceding month of issue for display advertising. Reentered as second-class matter at the Post Office, New York, N. Y., under the Act of March 3, 1879. Single copies: Current issues 50¢; all back issues $1.00. Claims for missing issues must be received within 60 days of mailing date.

THERE'S MUCH ADO ABOUT WHAT THE ARQUADS® CAN DO!

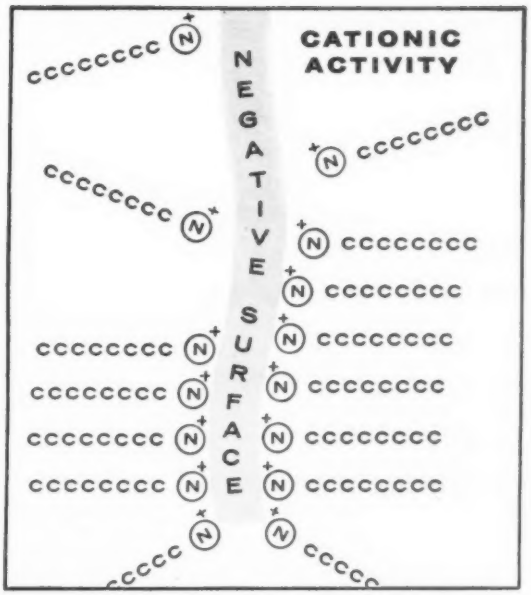
Armour's quaternary ammonium salts are boosting sales and cutting costs in more than 30 different industries!

Softness you can see and feel, without loss of water absorbency. In these photos of identical towels, magnified many times, you see one rinsed with Arquad 2HT softener, one without a softener rinse. Notice the difference as the positively charged molecules of Arquad 2HT stick to the fibers. Uppermost photo demonstrates the remarkend result—fibers are fluffy, soft, water absorbent and full of life. Photo on left shows fabric without a special rinse—fibers are stringy, coarse, matted down. Fluffy stack of towels, above on right, again shows the effect of the Arquad solution rinse.

How the Arquads work

A cationic product is substantive because most surfaces are neutral or negatively charged. This causes the Arquads' positively charged nitrogen molecules to be attracted and "plate out" on these surfaces. The surface may be metal, plastic, or fabric—even bacteria, algae or clay.

The drawing at right shows a material placed in an Arquad solution. As the Arquad's positively charged molecules orient themselves toward the negatively charged surface, they gradually form an even, invisible, impenetrable film.



Where the Arquads work

In oil fields as bactericides. Controlling sulfate reducing bacteria in water floods is a major use of the Arquads. As little as 7 ppm controls the growth of these bacteria, prevents corrosion, and plugging of lines and sub-surface formations.

In plastic manufacture as anti-static agents. Just 1% water solution of an Arquad eliminates normal static electricity of plastics by dissipating the electrical charge from the plastic surfaces.

In water clarification systems as a flocculating aid. The Arquads "settle out" clay and other matter and help many industries produce better water.

By insecticide formulators as emulsifiers. Combined with another non-ionic emulsifier made by Armour, Arquad 2C produces complete emulsification and extended storage stability of insecticides, such as Lindane, Toxaphene, DDT or Chlordane.

Besides their cationic activity, the Arquads have a flexible composition of varying chain lengths, range from oil soluble to water soluble. These surface active agents are effective in low concentrations, stable over wide temperature and pH ranges. They are compatible with non-ionic materials and are easy to handle.

Listed here are just a few of the Arquad applications. Find out how the Arquads can help improve your process or your finished products. We will be happy to help you determine the correct Arquad for your specific application. Send the coupon for samples, further product information bulletins and/or a copy of the informative Arquad brochure.

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HIGH

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Clean as a whistle. Her laundry is light work these days, thanks to heavy-duty detergents and mechanical washers. Soap and detergent manufacturers know it pays to see Victor for *sodium tripolyphosphate* and *tetrasodium pyrophosphate*. Both have outstanding water-softening action and detergent properties.

KP is OK—today. When the kitchen force takes charge *now*, KP duty is a snap. Commercial dishwashing compounds containing Victor *chlorinated trisodium phosphate* smell fresh . . . do a cleaner, more antiseptic job.

Clean Sweep. That's what dirty floors get when Victor sodium polyphosphates are part and parcel of the industrial cleaning compounds used by the clean-up crews. For rugged or delicate jobs where detergency has to pay off in one operation, many compounders know that . . . It pays to see Victor!

For private brand resale buyers of waxes and kindred products

...Your Quality Guide

WATER EMULSION WAXES

Each of Candy's floor waxes are all-around top quality for certain traffic conditions. They impart the finest protection and beauty to floors for which best suited.

CANDY'S SUPREME (standard)
BRIGHT BEAUTY®
CANDY'S SUPREME Special WR
SUPER CAND-DOX®
CAND-DOX® #CS
CANDI-WAX #6000

All Candy's products are available for private brand resale and are sold only through distributors except for experimental accounts in Chicago essential to research.

Beauty and Durability

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-Slip

Anti-slip, or reasonable safety underfoot, does not mean that the qualities of beauty and protection need be sacrificed. The proper balance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason for use of a floor wax...beauty and protection.

Water Resistance

Frequent damp mopping or wet traffic can make water resistance very important. Over-doing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

Solid Content

The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Over-waxing and resultant greater difficulty in removal for periodic maintenance may do more harm than good.

Carnauba Wax

The most important features of a good wax...all-around quality of performance...are built around Carnauba Wax. When refined and compounded with other additives and scientifically controlled in manufacture, Carnauba alone imparts the beauty and protection that makes the use of floor waxes both profitable and possible. Make-shift manufacture or over-emphasis on any one given wax feature should be avoided and proper care taken to provide for most satisfactory performance.

Other HIGHEST QUALITY products of CANDY & COMPANY, Inc.

CANDI-COAT 1000, WATER RESIN EMULSION

As a floor coating for use under specific conditions of continued maintenance on certain types of floors this water resin emulsion has none of the faults associated with coatings of this type. It is the finest product in its class produced up to this time.

Bright Beauty WAX REMOVER & all-purpose SURFACE CLEANER

For removal of water-emulsion waxes from any floor without harmful effects. It is the perfect maintenance program wax remover and all-purpose surface cleaner. Pleasant odor, crystal clear color and thorough cleaning action with all types of equipment. Unaffected by hard freezing. Furnished ready for resale or in concentrated form for local packaging...nothing but water to buy or mix in.

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A cream furniture polish that spreads easily, polishes without excessive effort to a deep impressive lustre. Permits *repeated repolishing* with a dry cloth, thus saving many re-applications. A very economical polish of the very highest quality.

Bright Beauty PASTE WAX

Properly blended and refined from excellent quality solids and solvents that produce the best drying time and evaporation. Easy to handle, having "creamy" consistency and stability that lasts throughout storage and usage life.

Bright Beauty LIQUID (spirit) PREPARED WAXES

A complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usages. Each acts as a "dry cleaner" to keep surfaces waxed protected with a superb coating necessary for many applications such as wood and certain other types of floors; for bars, wallpaper, etc.

Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH

As a glass cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanliness to glass. As a cleaner of silver, it polishes to a high lustre *without* abrasion and can even correct the abuses of scratchy "quick-polish" inferior products.

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Does not "ball-up" and gather dirt that impregnates floors with hard spots difficult to remove...free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom floors.

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***Cleans and scours* more effectively and quicker than most scouring powders. Depending on application, it can clean to perfection even painted walls to provide a suitable repainting surface. 100% active, free from excessive abrasive qualities, it frees almost every surface from all foreign matter.**

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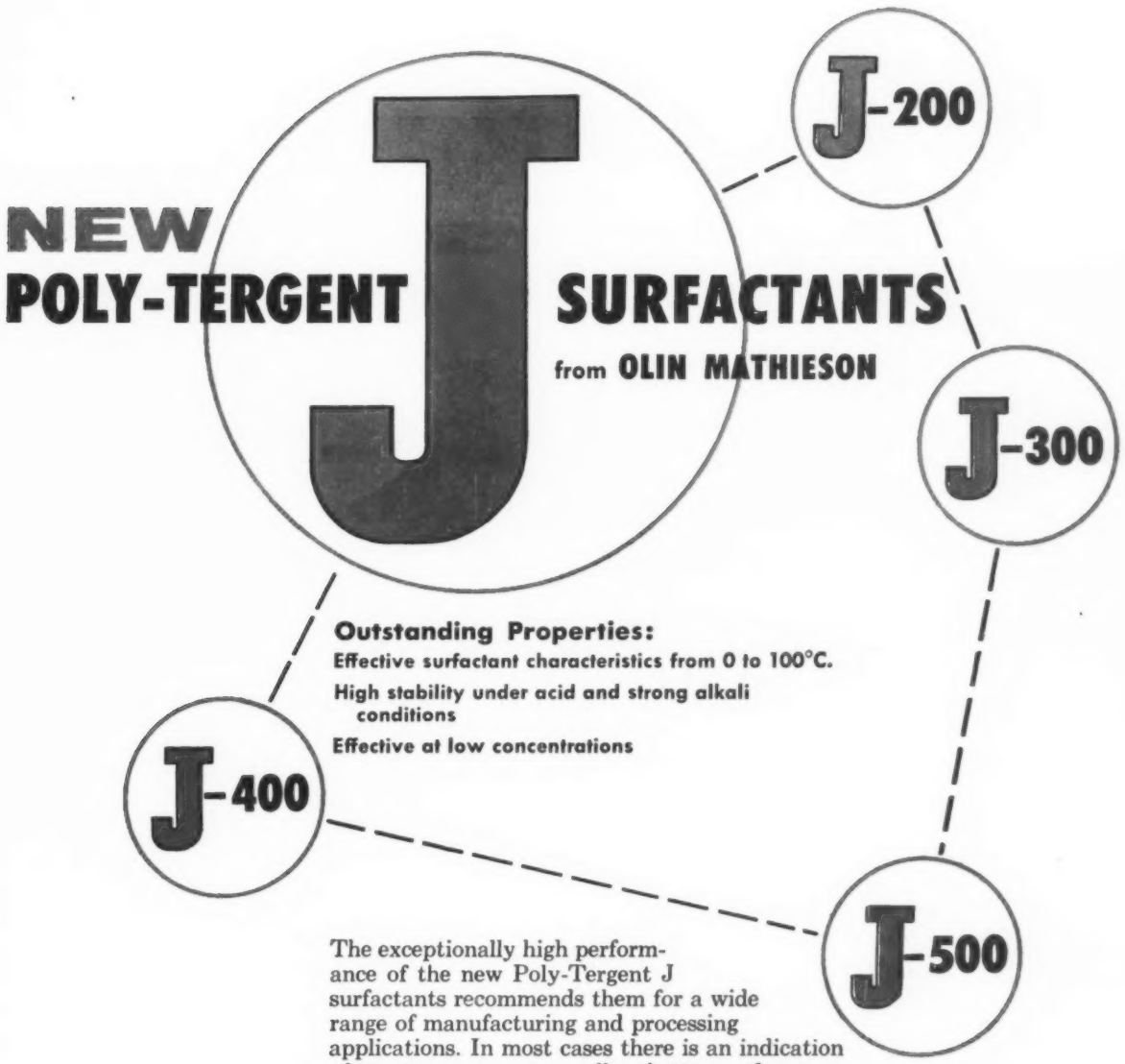

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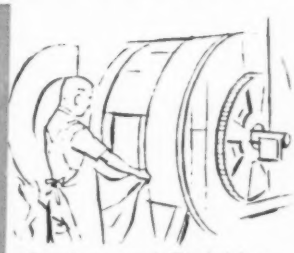
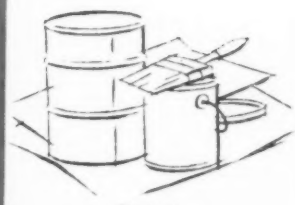
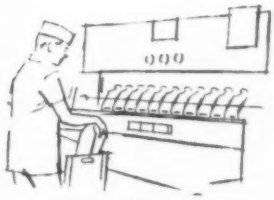
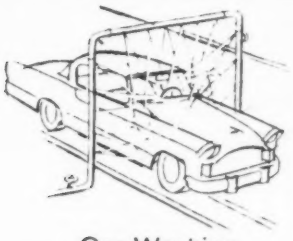

Dyeing and Finishing


Paint


Bottle Washing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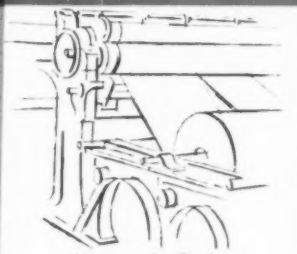
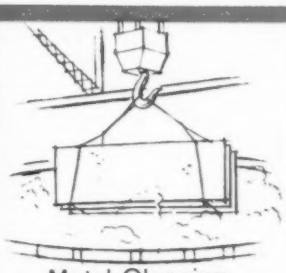
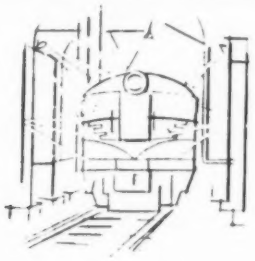
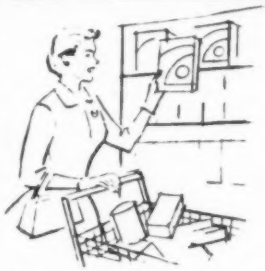

Paper & Pulp


Metal Cleaning

Dairy


Railroad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NEOLENE 400

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(100% active nonionic alkyl aryl polyether alcohol)

Gives high, persistent foam

Effective over wide range of water hardness and pH

Excellent wetting agent and emulsifier

Extremely stable in presence of acids, alkalis, inorganic salts including heavy metal salts

A powerful detergent

Suggested uses—dairy detergents and milkstone remover, car wash, antiseptic sanitizer, paint and woodwork cleaner

HYONIC FS

(100% active lauric acid alkylolamide condensate)

Superior foam stabilizer for anionics

Remarkable thickening action over a wide range of concentrations

Non-corrosive—can be stored indefinitely

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Suggested uses—liquid dishwasher, clear liquid shampoo, bubble bath

No, it isn't necessary to explore the universe for your detergent aids since Nopco Hyonics will undoubtedly provide just exactly the properties you need and Nopco technical men will work right with you to help you produce detergents of your own specifications.

Write today for complete data on Nopco Hyonics.
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PLANTS: Harrison, N. J.
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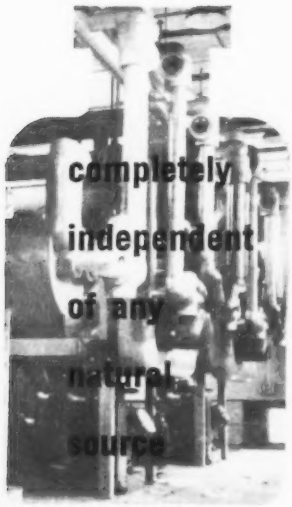
the new 'ROCHE' Aromatics offer the perfume designer and manufacturer :



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A completely new synthetic aromatic. Possesses a soft green odor with a rose note. A good base for synthetic lavender, geranium and rose bouquet. Stable in soap.

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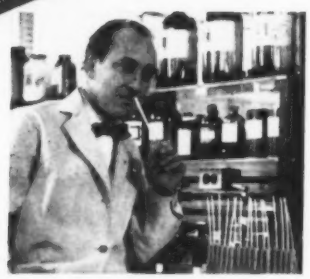
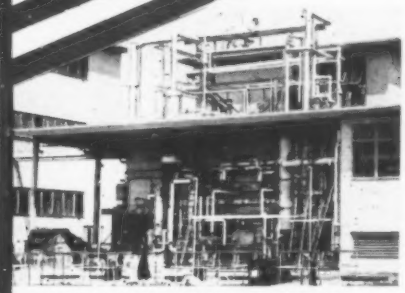
Pure nerolidol. Light balsamic odor. Excellent fixative. Blends well with any perfume compound.

Detailed information on each product will be furnished on request.

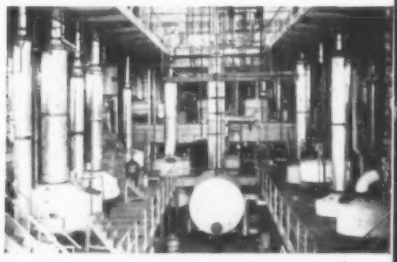


Continuous olfactory control.

Constant control of uniformity.



Part of the specialized manufacturing facilities for maintaining uniformity of 'Roche' Aromatics.



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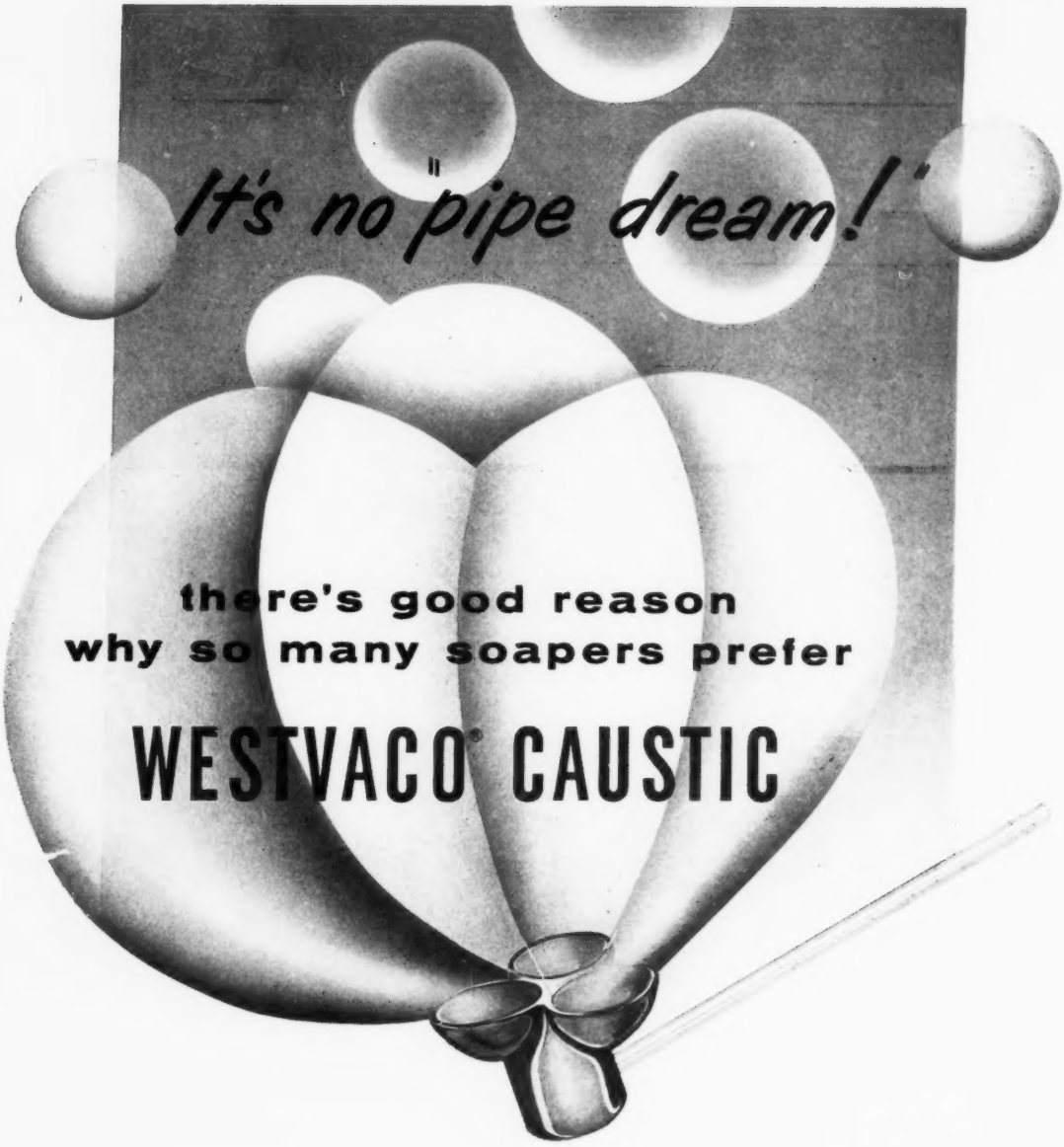

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After Closing

Flanagan in New Post

Appointment of George Flanagan as vice-president of the Federal Varnish Division of Enter-

George Flanagan

prise Paint Manufacturing Co., Chicago, was announced recently by Glenn E. Doerr, president. For the past three years, Mr. Flanagan has served as sales manager. In his new post, he will be concerned with sales of the company's line of floor maintenance specialty products. He joined Federal in 1946, and was southeastern sales representative until 1954. He is a former member of the board of the National Sanitary Supply Association.

★

NPCA Committee Chairmen

Administrative committees of the National Pest Control Association, Elizabeth, N. J., recently were appointed for the coming year by J. C. Redd, newly-elected president of the organization. Committees and their chairmen include:

Advertising, Martin T. Meyer, Theodore Meyer Estate, Philadelphia; bird management, George L. Hockenyos, Sentinel Laboratory, Springfield, Ill.; constitution and by-laws, Ward A. Coombs, Presto-X Co., Omaha, Neb.; 1958 national convention, Herman L. Fellton, Getz Exterminators, Atlanta, Ga.; coordination of state and national associations, W. B. Clements, Clements' P. C. & Garden Supply, Leesburg, Fla.; equipment, G. L. Edwards Redd Pest Control Co., Jackson, Miss.; fumigation, T. Roy Young, Young-Jones Laboratories, Tampa, Fla.; insecticide, W. I. Elo, Elo Exterminating Co., San Antonio, Tex.; membership, Maurice Oser, Oser Exterminating Co., Denver, Colo.; public relations, Leon A. Moore, L. A. Moore & Co., Utica, N. Y.; rodent control, Harlan Shuvler, Conservation Industries, Inc., Kansas City, Kans.; safety, William Turrie, Wil-Kil Pest Control Co., Milwaukee; sanitation, Fred Jacobson, Industrial Sanitation Consultants Division, Vogel-Ritt, Inc., Philadelphia; technical, W. B. Gresham, Jr., Professional Exterminators, Tampa, Fla.; and wood destroying organisms, Charles V. Kyle, Extermital Termite Service of Dayton, Dayton, O.

★

Lou Pollock Dies

Lou Pollock, 56, sales promotion manager for the bulk division of Davies-Young Soap Co., Dayton, died suddenly of a cerebral hemorrhage Dec. 22. Born in New York, Mr. Pollock had resided in Dayton for many years. For the past five years he was associated with Davies-Young. Prior to that, he had owned his own firm, manufacturing a special brush for industrial glass washing. He is survived by his widow and two sons.

★

New DuBois President

Charles A. DuBois has been elected president of DuBois Co., Cincinnati, succeeding his late father, T. V. DuBois, who died recently. The elder DuBois founded

Charles A. DuBois

the company in 1920. At the same time, it was announced by the board of directors that Louis Lerner has been appointed executive vice-president of the firm.

Other officers elected at the meeting were: Ateo Gulino, C. C. Hargadine, Samuel J. Miller and A. Howard Mount, divisional vice-presidents, Paul F. Goebel, secre-

Louis Lerner

tary-treasurer, and George H. Scheper, assistant secretary and treasurer.

★

Revlon Buys Knomark Co.

Revlon, Inc., New York, earlier this month announced the purchase of Knomark Mfg. Co., Springfield Gardens, L. I., manufacturer of shoe polishes and related specialty products. Purchase of the Knomark organization was for cash, according to Charles Revsons, president of Revlon. No other terms of the transaction were announced.

Knomark will be operated as a wholly-owned subsidiary of Revlon. Present operating policies and executive personnel will be retained, Mr. Revson said. He added that the purchase was in line with the company's decision to diversify and expand in the area of staple package goods, outside its own recognized field.

Revlon produces a wide line of cosmetics, including "Silicare," a hand lotion that it is now packaging in industrial size containers for sales through sanitary supply

jobbers. Founded in 1927, Knomark's principal trade mark products include "Esquire" boot polish, "Scuff-Kote," "Lano-Wax," and "Lanol-White."

—★—

P&G Case Resumes Jan. 30

A resumption of the hearing before a Federal Trade Commission examiner in the "anti-monopoly" case against Procter & Gamble Co., Cincinnati, is scheduled for January 30. P&G, which acquired Clorox Chemical Co., Oakland, Calif., last summer for an estimated $30 million, is charged by FTC by "substantially lessening competition or tending to create a monopoly in the household bleach field in violation of the Antimerger Law" (Section 7 of the Clayton Act).

At hearings beginning Dec. 16 in Cincinnati, P&G's attorneys argued that the Department of Agriculture and not the Federal Trade Commission should police the company's operations. John S. Brod, assistant director of Procter & Gamble's food research department, testified before FTC Examiner Everett F. Haycraft that 85 to 90 percent of the fats used in P&G's shortenings are meat fats. This, according to Kenneth C. Royall, attorney for Procter & Gamble, put the company under the jurisdiction of the Department of Agriculture and not the FTC.

P&G, through its attorneys, objected to producing company records and asked that the Examiner dismiss the suit on ground of lack of jurisdiction. They asked that a subpoena calling for company records be quashed after government attorneys sought permission to present testimony. There was no immediate ruling on the motion to dismiss or the motion to quash the subpoena for records.

The hearing was recessed on Dec. 19 by Mr. Haycraft until Jan. 30, following instructions to attorneys for both sides to file briefs on a dismissal motion by January 10.

NSSA To Meet in New York Feb. 22-25

NEW developments in sanitary chemicals, related specialties and maintenance equipment will be highlighted at the 35th annual trade show and convention of the National Sanitary Supply Association to be held at the New York Coliseum, Feb. 22-25. A record number of 181 manufacturers and distributors of sanitary chemicals and application and dispensing equipment, sold through sanitary supply jobbers, will exhibit at booths located on the fourth floor of the building.

In addition to the trade show, the meeting will feature talks by Elmer Wheeler, nationally known lecturer and author on sales training, and Dr. Murray Banks, a clinical psychologist and formerly head of the psychology department at Pace College, New York. Mr. Wheeler will address the convention at 4:00 p.m. on Monday, Feb. 24, while Dr. Banks will deliver his talk at the initial convention meeting to be held at 7:30 p.m., Sunday, Feb. 23 at the Hotel Commodore.

James Reider, George T. Johnson Co., Medford, Mass., NSSA president, will address the meeting portion of the gathering when it first convenes on the evening of Feb. 23. Harold J. Pond, Advance Floor Machine Co., Minneapolis, and NSSA vice-president, and Leo J. Kelly, executive vice-president, will also address this session. On Monday, Feb. 24 at 1:45 p.m., NSSA will elect its national officers, directors and regional vice-presidents. The annual banquet and floor show will be held on Monday evening February 24 at the Hotel Commodore.

Another highlight of the convention will be the annual report of the educational and public relations committees and presentation of a new NSSA film on the "Importance of Sanitation."

The trade show will be open as follows: Saturday, Feb. 22, 9:00 a.m. to 6:00 p.m.; Sunday, Feb. 23, 9:00 a.m. to 5:00 p.m.; Monday, Feb. 24, 9:00 a.m. to 12 noon; Tuesday, Feb. 25, 9:00 a.m. to 12 noon. In addition, on Feb. 22 exhibitors will hold open house at 7:00 p.m. in their suites at the Hotel Commodore.

A partial list of the firms who will display their products and services include:

Aerosol Corp. of the South, Arlington, Tenn.; Airkem, Inc., New York; American Dispenser Co., New York; Armour and Co., Chicago; B. T. Babbitt Inc., New York; Bixon Chemical Corp., New York; Bobrick Dispensers, Inc., Los Angeles; Buckingham Wax Co., Long Island City, N. Y.; Butcher Polish Co., Malden, Mass.; Candy & Co., Chicago; Cellowax Co., Baltimore; Chemical Service of Baltimore, Baltimore; Colgate-Palmolive Co., New York; Davies-Young Soap Co., Dayton; Duo-Dellay Products Co., Baltimore; E. I. du Pont de Nemours & Co., Wilmington, Del.; East Coast Soap Corp., Brooklyn, N. Y.; Excelsior Varnish, Inc., Cleveland; Golden Star Polish Mfg. Co., Kansas City, Mo.; Harley Soap Co., Philadelphia; Hewitt Soap Co., Dayton; R. M. Hollingshead Corp., Camden, N. J.; Hysan Products Co., Chicago; Independence Chemical Co., Philadelphia; J Chemical Works, New York; S. C. Johnson & Son, Inc., Racine, Wis.; Kusiel Chemical Co., New York; Lamco Chemical Co., Boston; Lewis Research Laboratories, Inc., New York; Le Fevre Chemical Co., Oklahoma City, Okla.; Lightfoot Co., Hoboken, N. J.; MacCarl Co., Cleveland; Magee Chemical Co., Bensenville, Ill.; Moore Brothers Co., New York; Multi-Clean Products, Inc., St. Paul; National Chemical Laboratories, Philadelphia; O-Cedar Division of American Marietta Corp., Chicago; Oil Specialties & Refining Co., Brooklyn; G. H. Packwood Mfg. Co., St. Louis; Peck's Products Co., St. Louis; Piatt & Smillie Chemicals, Inc.; St. Louis; Puro Co., St. Louis; Reliance Chemicals Corp., Houston, Tex.; Rubon, Inc., Independence, Mo.; I. Schneid, Inc., Atlanta, Ga.; Simoniz Co., Chicago; Sterwin Chemicals, Inc., New York; Uncle Sam Chemical Co., New York; James Varley & Sons, Inc., St. Louis; Virginia-Carolina Chemical Corp., Richmond, Va.; Walton March, Highland Park, Ill.; T. F. Washburn Co., Chicago; Whitmire Research Laboratories, St. Louis; and Wyandotte Chemicals Corp., Wyandotte, Mich.

—★—

Sun Appoints Blackstead

Election of Eric N. Blackstead as a vice-president and general manager of its chemicals group, was announced recently by Sun Chemical Corp., Long Island City, N. Y. He previously was vice-president

Eric Blackstead

and general manager of Ansbacher-Siegle Corp., Staten Island, N. Y., a pigment producer recently acquired by Sun. The chemicals group makes plastics, pigments, and products of the firm's subsidiary, Warwick Wax Co., which include textile and industrial chemicals and specialty waxes.

—★—

New Powr-Pak Plant

Powr-Pak, Inc., Bridgeport, Conn. contract aerosol loader, has moved to new and enlarged quarters at 145 Howard Ave., Bridgeport, it was announced early this month. The new facilities, which previously were occupied by Precision Steel Co., feature an 110,000 square feet factory, in addition to modern administrative offices and research laboratories.

The factory portion of the building is equipped with four new production lines which are capable of handling up to 350,000 aerosol units daily. The plant is divided into two aerosol areas—one for filling pharmaceutical products and the other for food-filling.

Other facilities at the new plant include a railroad siding, four truck shipping platforms and three receiving docks. An expansive storage area will accommodate the warehousing of five million empty aerosol containers as well as one million filled units. Full scale operation is scheduled for the end of the month. Meanwhile production will be maintained at the firm's plant at 643 North Ave.

Willis Joins Velsicol

Bernard Willis has joined Velsicol International Corp., Nassau, Bahama Islands, as manager of the New York office and director of the Canadian Division. The firm is a subsidiary of Velsicol Chemical Corp., Chicago. In his new post, Mr. Willis will headquarter in New York and handle distribution of the company's line of insecticides, industrial resins and solvents to points outside the continental United States. He previously was vice-president and director of Tar Residuals, Inc., New York.

—★—

Egg Shampoo Labelling

Food & Drug Administration regulations governing the labelling of shampoo containing egg were made known last month in special report issued by the Toilet Goods Association, Inc., New York.

According to M. R. Stephens, director of the bureau of enforcement of the FDA, an article designated as "egg shampoo" should contain one egg (or the equivalent amount of dried whole egg) in that quantity of the article which would be used in one shampooing of the hair.

An article which contains less than one egg per "shampoo," he added, should not be referred to as an "egg shampoo" and the word "egg" should not be used as part of the name of the product.

At the present time, the FDA

Bernard Willis

is not raising objection to the marketing of such a product provided the word "egg" does not appear in the title of the product, Mr. Stephens said. However, a reference such as "plus egg" must appear in a subordinate position on the label and in type which is substantially reduced in size in comparison with the product name.

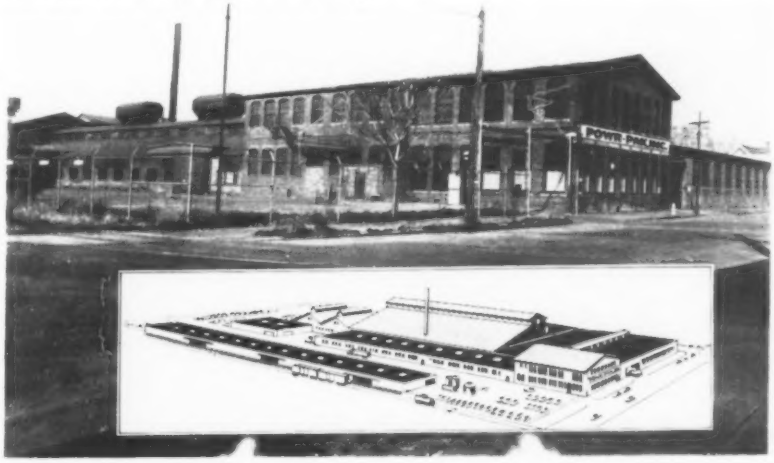
In the case of a product containing less than two per cent egg, the FDA has ruled that the amount of egg is so small that to mention its presence on the label would constitute misrepresentation.

—★—

Polak Sales Meeting

Polak Frutal Works, Inc., Middletown, N. Y., held its annual sales meeting Dec. 16-19. Participating in the meeting were all sales representatives from the United

New plant at 145 Howard St., Bridgeport, Conn., into which Powr-Pak, Inc., is currently moving. Plant provides 110,000 square feet of floor space in which four new aerosol filling lines are being set up. Plant, which will be in full operation by end of month, can turn out 450,000 aerosol units daily.



States, Canada and Japan. Bernard Polak, president, opened the meeting with a few words of welcome. The three-day affair featured discussions on new flavorings, perfumes, panel testing and panel discussions. A cocktail party and dinner held at the Orange County Golf Club concluded the meeting.

—★—

NYPCA Holds Panel Meeting

Efforts of entomological research groups, government agencies, and pest control specialists must be coordinated for effective control of resistant roaches. That was the opinion of an eight-man panel, composed of officials from federal, municipal and county health authorities and entomologists of several chemical companies, which met recently at the Hotel Warwick, New York, to discuss the problem of "Resistant Roaches."

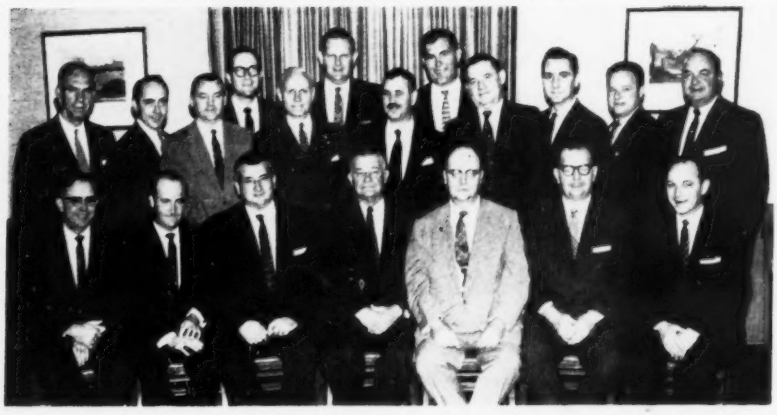
The program was sponsored by the New York Pest Control Association, trade organization of exterminating companies which service metropolitan New York, Long Island, Westchester County, New Jersey and Connecticut.

Methods designed for combating resistant roaches that were presented by the panel included improved sanitation conditions, more frequent use of insecticide or pest control chemical, a more intensified search for hiding and breeding areas, and a re-education of pest control operators in procedures used in fighting the resistant roach.

Talks given by panel members included: "A History of Roaches," by John Rehn, entomologist, United States Navy Public Works Office; "Role of the Insecticide in Combating Roaches," by Dr. C. C. Alexander, Geigy Chemical Corp., Ardsley, N. Y., and president of the eastern division of the Entomological Society of America; "The Role of the Chemical in Combating Resistant Roaches," by Dr. Ray Barron, chief entomologist of the phosphate and nitrogen division of American Cyanamid Co., New York; "The Need for Re-Educating the Pest Control Operator," by Dr. Harry Aaronson, Nassau County Department of Health.

Sales representatives of Polak's Frutal Works, Inc., Middletown, N. Y., gather at company's annual sales meeting held last month. Representatives from the United States, Canada and Japan attended the four-day meeting.

Sales personnel of the laundry chemical department of Cowles Chemical Co. Cleveland, gather for eastern sales clinic held recently at the Berkeley-Carteret Hotel, Asbury Park, N. J. Directed by W. J. Schleicher, department manager, and R. G. Johnson, department sales manager, the conference featured "brain storming" sessions on "How to Get an Order and Overcome Objections," and a preview of new products soon to be placed on the market. Seated left to right are: Robert Bateman, Doc Lassiter, Matt Robinson, Earle Davis, Nelson Benson, Ray Johnson and Joseph Bardello. Standing, second row, left to right are: William J. Schleicher, Robert Paradis, James Sogorka, Charles Bassett, Ronald Moran, Charles Blewett, Al Jurusz, Duke Dusek and William Arnold. Standing, top row, left to right are: William Roy, Joseph Andell and Cliff Philip.



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Diazinon for Aerosols

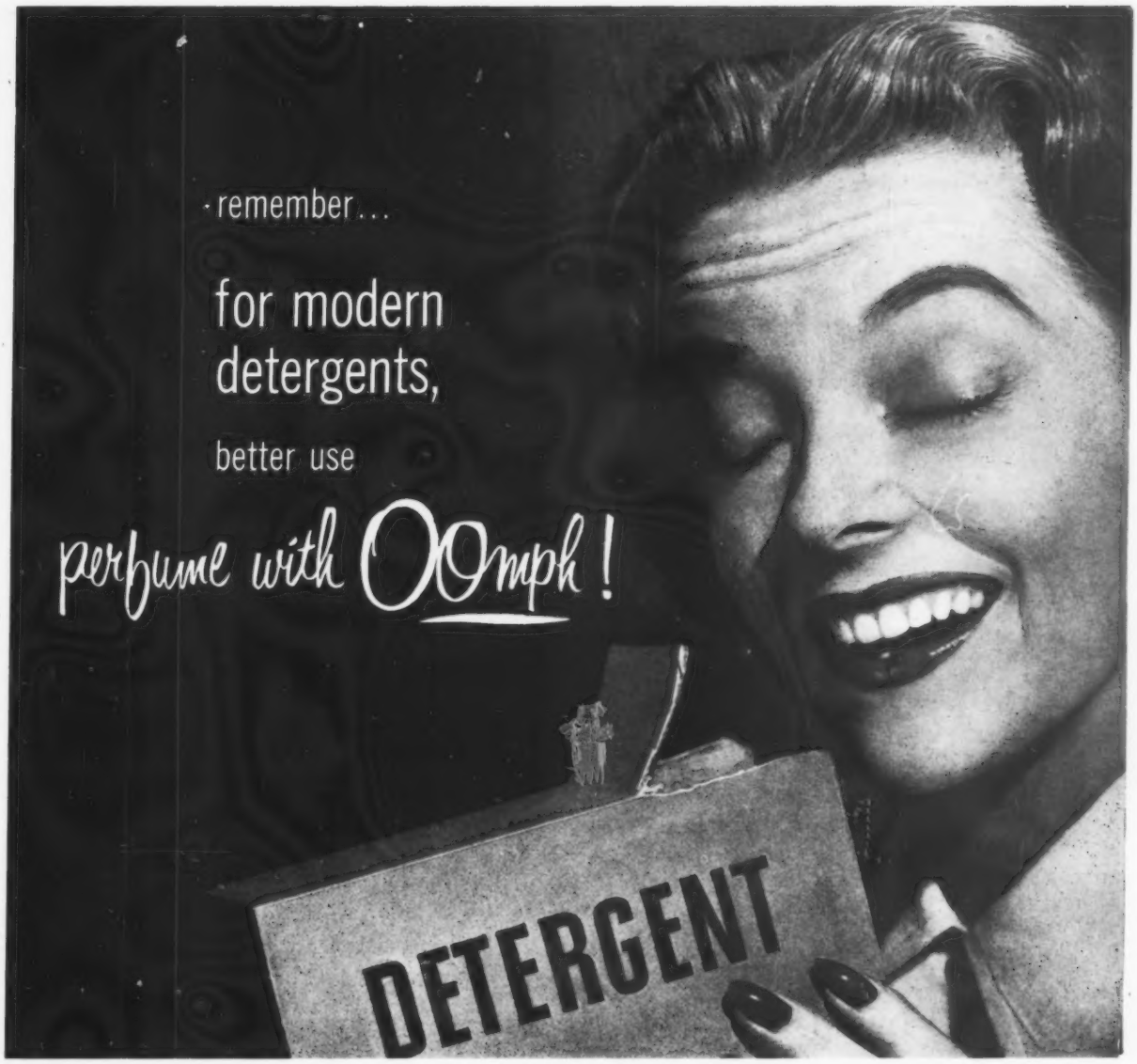
Since "Diazinon" has been accepted recently by the U.S. Department of Agriculture for use in certain household insecticidal sprays its incorporation in aerosol formulations is suggested by Geigy Agricultural Chemicals, Division of Geigy Chemical Corp., Ardsley, N.Y., manufacturer of the organic phosporus compound. Suggestions for formulation and labelling of such a product are available from Geigy.

A coarse residual type aerosol spray is based on a concentrate incorporating:

	% by weight
"Diazinon 20 S" (a 20 per cent solution of "Diazinon" in aromatic petroleum solvent)	3.62
Pyrethrins-piperonyl butoxide concentrate	1.26
Deodorized kerosene	95.12

This concentrate is formulated with a suitable propellant at a ratio of 70 per cent by weight of insecticidal concentrate/30 per cent by weight of propellant.

Geigy will supply detailed information on labelling and formulations of pressurized and other household sprays based on "Diazinon"-synergized pyrethrins combinations.



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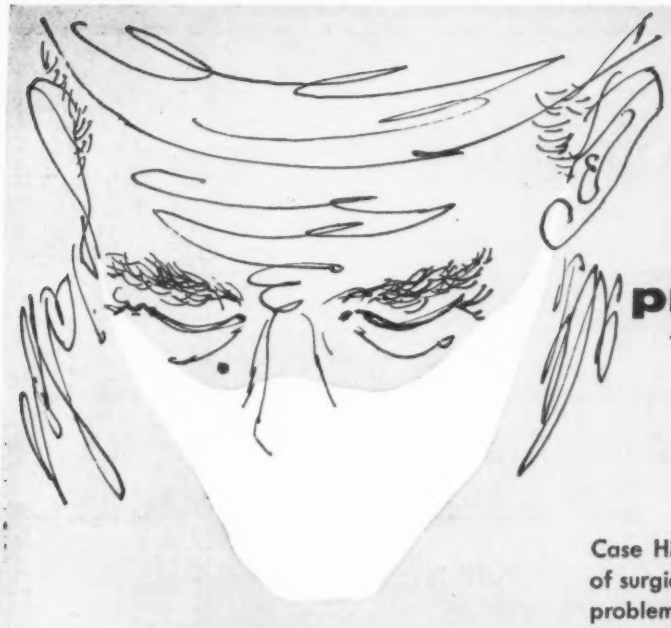

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by John W. McCutcheon

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. . . in brief

. . . as the editor sees it . . .

DETERGENT SALES . . . . Detergent and soap sales continue to climb. For the first three quarters of 1957, a new all-time high was set topping 1956 figures by 3 per cent in tonnage and 8.4 per cent in dollar value, according to the sales census figures of the Soap Association. The real "hot" item continues to be liquid detergent sales. They increased 31 per cent in tonnage for the first nine months of 1957 against an increase in all synthetic detergents of 7.8 per cent. More significant was the increase in dollar volume of 18.4 per cent, a rather strong indication that the prices of liquids have been brought down to where they are more and more competitive with other detergents.

With the sole exception of toilet soaps, all soap products continued their long-range downward sales trend for the same period in 1957. Solid laundry soaps, chips, granulated, washing powders, even liquid and paste soaps, all lost ground. Toilet soaps, however, continued to show their steady upward march gaining 4.5 per cent in tonnage and 9.4 per cent in dollar volume. So far, at least, they of all the soaps hold fast against the inroads of synthetic toilet bars. In the overall picture, synthetics gained another 3.1 per cent of the total "soap" market during the period. All in all, it looks like detergents are here to stay for a while.

* * * * *

AEROSOL? . . . . When is an aerosol not an aerosol? Our advice last month that the word, "bomb," be dropped from pressure packaging verbiage has been followed by a suggestion from a good Canadian friend,—published on the letters page,—that we do something about the misuse of the word, "aerosol." Most of the so-called aerosols sold today are not aerosols at all, says he. Mentioning specifically pressurized space and residual insecticides and shave cream, he states that they are not aerosols and have no right to be termed as such.

Well, most people in the "aerosol" business know this quite well. Some have tried to substitute the term, "pressure packaging," and drop "aerosol." But it seems, the word, "aerosol," like Topsy, has just growed. People continue to use the word even though they may know it's a misnomer. Common usage in the trade has given it a meaning almost synonymous with "pressure packaging." Actually, the word, "aerosol," is trademarked and has been for some years. The mark is owned by American Cyanamid for a line of synthetic wetting agents.

So where do we go from here? We wonder if the term is already too firmly imbedded in the language to be kicked overboard now. Should we go ahead with the misnomer or try to change it? For the best correct answer we will award one package "Spearmint" chewing gum.

* * * * *

AUTOMOTIVE . . . . Recently a manufacturer of automotive chemical specialties remarked that there are over 200,000 automobile service stations in the U. S. and what they sell in the way of chemical products, polishes, cleaners, waxes and the like, is peanuts to what they could and should sell. The CSMA survey of sales of automotive waxes, polishes and cleaners for 1956 showed a total of something like 70 million gallons of all products. Just how much of this was sold in service stations is not known, but it is believed to be relatively small.

Why have service stations been almost notorious over the years as poor outlets for anything except gasoline, oil and antifreeze? It could be one of several things, but our own observations would indicate that personnel is the chief fly in

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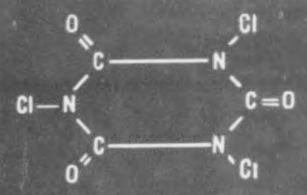

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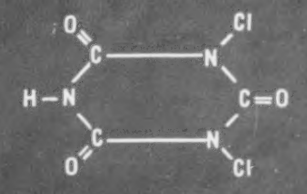

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the sales ointment. Not only a low grade of help, but owners and managers with less than average sales ability, or without even the apparent willingness to attempt to make a sale, seem to be the rule rather than the exception. Even some of the oil companies with their own chemical specialty lines seem to have given up on service stations as a bad job.

Possibly the margin in polishes and cleaners is too small to be of interest. But we doubt it. We feel that the average service station is just not a merchandising outfit, that it sells what people come in and ask for, and lets it go at that. Yes, there are exceptions, but the job of educating the others must be insurmountable or somebody would have accomplished it.

* * * * *

PERFUME . . . . As we look back over the past ten years, we note a vast improvement in the perfuming of many things, more especially certain chemical specialties, things which have been considered difficult to perfume. People, we have a hunch, are more odor-conscious than ever these days and a pleasant odor,—or more specifically the lack of unpleasant odor,—has had a marked bearing on sales. The ill-smelling chemical product will be passed by. The housewife invariably can find a pleasant-to-use competitive item. There could be some direct connection between the wide expansion in chemical specialty sales since 1940 and a constantly widening use of perfuming materials in these products over the same period.

But there is still room for improvement. Some household items and especially some washroom products are still highly offensive to users, mainly because of unpleasant odor. To move away from chemical products for a moment, we recently attended a real fancy-dan cocktail party where eveything was really tops, everything except the handsomely-printed paper cocktail napkins. They stunk to high heaven with a nauseating stench. And the liquid soap in the washroom was completely unperfumed, a cheap product obviously designed to sell at a price. Nice party, and all that, but for us spoiled by a couple of supposedly minor details. Sure, there's been great progress in perfuming lots of things, but there's still room for more.

EGG SHAMPOO . . . . We see that the Food & Drug Administration has recently told the Toilet Goods Association how much egg there must be in an egg shampoo before it may be designated as such. No more of this business of just passing an egg shell quickly over the mouth of a shampoo bottle and then printing prominently on the label, "Schmaltz" Egg Shampoo. No, siree, the stuff has got to contain one egg or the equivalent thereof for each average use in shampooing the hair. If a bottle of shampoo is good for ten hair washes, then it's got to contain ten eggs. To us that seems like an awful lot of eggs. Doesn't leave much room for the detergent or soap or whatever else they use in these concoctions.

As for us, we'll take our eggs in the form of an omelet or soft boiled. But there are still ladies who like to apply them to their skulls in the hopes of enhancing the beauty of their crowning glory. And old FDA is going to see that they get their eggs where they want 'em, just like the bloke who likes one in his beer. Also, we might add, if a shampoo contains less than 2 per cent egg, it's taboo to mention "egg" in any manner, shape or form on the label. Just isn't enough egg to be significant. In what way a lot of egg is significant, we have never found out. In fact, often we have wondered why egg as an ingredient is superior to vegetable glue or pancake mix.

* * * * *

SOAP BATTLE. . . . The never complacent marketers of toilet soaps are staging a merchandising battle that promises to be a dilly. Every marketing trick in the book, and a few that aren't included, are being thrown into the fray. Toilet soaps in colors to match your new automobile, newer and fancier foil wraps, new perfumes, new additives ranging from bactericides to cold cream, four color magazine advertising, radio and TV commercials, newspaper advertising, combination packages, coupons, deals—the works—are being exploited.

The housewife, slightly confused by the profusion of new things, continues to buy; the grocer tries to figure out where he can get more shelf space and the soap maker wonders where his product will wind up in this mad scramble.

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as the reader sees it . . .

Aerosols?

Editor:

I noted your editorial on "Bombs" in the December issue of *Soap and Chemical Specialties* and read it with interest.

Don't you think you could go another step forward and publish an editorial on the word "aerosol"? "Aerosol" as originally defined referred specifically to a pressurized pack dispensing liquid particles in a specific range of sizes. The pressurized residual insecticides and the pressurized space sprays are not true aerosols because they do not meet the particle size requirements. How anyone ever got the idea that a pressurized shave cream has any right to be termed an "aerosol" is beyond me.

How about it, Ed?

W. S. McLeod,
Officer in Charge,
Pesticide Testing
Laboratory,
Canada Department
of Agriculture,
Ottawa, Canada

Probably "pressure package" would be a better name. Persuading aerosol marketers, loaders, suppliers of components and equipment, to say nothing of the general public, to distinguish between a true aerosol and pressure packaged items such as shave cream would be a well-nigh impossible task. The boys in the pressure packaging business refer to all products as "aerosols". The general public, seeing a wide variety of products pressure packaged in containers that look alike and are operated with valves that are similar in appearance, can't be expected to differentiate on the basis of "particle size", a term that probably has no meaning for a consumer, anyway.

When synthetic detergents were first introduced the soap companies did not attempt to explain to the housewife the difference between a synthetic detergent and soap. Soap companies, in fact, often termed synthetic detergents "soaps". And the products sold well, even though the housewife was unaware of what she was buying. She was interested in results and got them with synthetic detergents. So, too, with "aerosols", or, if you prefer, pressure packages.

Incidentally, the term "aerosol" when translated into some European languages is often difficult to pronounce. This is felt, by some, to be holding down sales of pressure packaged products abroad.

See editorial comment on term "aerosol" on page 27. Ed.

• • • • •

"It Floats"—Too

Editor:

I have conceived a novel idea for a common use of any material which is used in small quantities from a larger volume, such as, a small amount of a cake of soap from a bar when bathing, washing dishes, etc.

As the quantity of material in the large form becomes less, it is more difficult to handle the small volume. For instance, when a cake of soap is used in a tub or shower until it is thin and small, generally, it is difficult to handle or to find in soapy water. Floating soap has always claimed the advantage of being within sight in a tub.

My idea is to make a soap or soap product around a buoyant material so that, not only will the soap be of the floating type but, it will not ever become thin or small in volume. For example, if the soap is moulded around a hollow plastic air-tight box of a desired shape, then the soap "bar" will not be any smaller than the size of the plastic box.

The inner core need not be of a hollow design. It could conceivably be made of a foam plastic, an article which would have value after the soap is used.

This idea could be used in other applications; such as, raising the volume of a liquid to a desired position. For instance, to raise the volume of a liquid to the suction pipe of a pumping system.

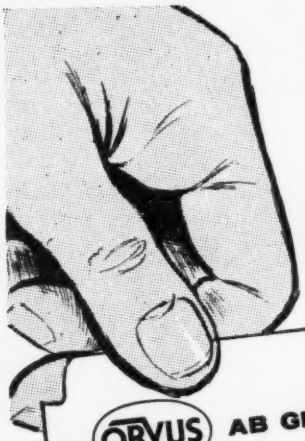
Mrs. Martha T. Corbett
P.O. Box 432,
Hendersonville, N.C.

P.S. In an editorial under the heading "In Brief – As the Editor Sees It" in the September issue of *Soap & Chemical Specialties*, reference is made to the small cake of hotel soap which, I suggest, may be made larger by using the inner core with the same amount of soap now being used. M. T. C.

Although we hate to disillusion Mrs. Corbett, her idea is not so new or novel. We refer her to the "Tale Ends" column of the April, 1957, issue of Soap & Chemical Specialties *in which we mention a recent Viennese invention which consists*

(*Turn to Page* 19)

Maurycy Bloch, alias "Willie Waxheart" receives his crown of gold, completing his uniform as president of the "W.W." society from M. J. "Hap" Hoover, executive vice-president of Sun Chemical Corp. Mr. Bloch is vice-president and general manager of Warwick Wax Co., Sun's subsidiary. Under Mr. Bloch's direction the "Willie Waxheart" idea has developed into a full scale promotion for Warwick's waxes.



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A medium titer, neutral white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required —hand soaps, paints, polishes, protective creams, dishwashing compounds and paper coatings.

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A specially developed synthetic detergent whose active ingredient is mainly modified alkyl sulphate. Offers exceptional efficiency and stability over a wide range of operating conditions. The product's detergent, wetting, penetrating, sudsing, dispersing and emulsifying properties make it excellent for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners, and a wide variety of other products.

ORVUS WA PASTE

A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium alkyl sulphate. Orvus WA has excellent sudsing, wetting, emulsifying, dispersing and penetrating properties which are well suited for paste and liquid shampoos, bubble baths, liquid detergents, liquid car washes, liquid floor cleaners, insecticides, glass cleaners, rug and upholstery cleaners and for many other liquid cleaners.

Kyro EO

A neutral nonionic synthetic detergent of the 100% alkyl-phenol ethylene oxide condensate type. A light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties, plus its compatibility with a wide variety of other products, offer excellent performance in liquid detergents, sanitizer detergents, self emulsifying solvents, automatic laundry detergents, glass cleaners, insecticides, textile cleaners, dairy cleaners and bottle washing compounds.

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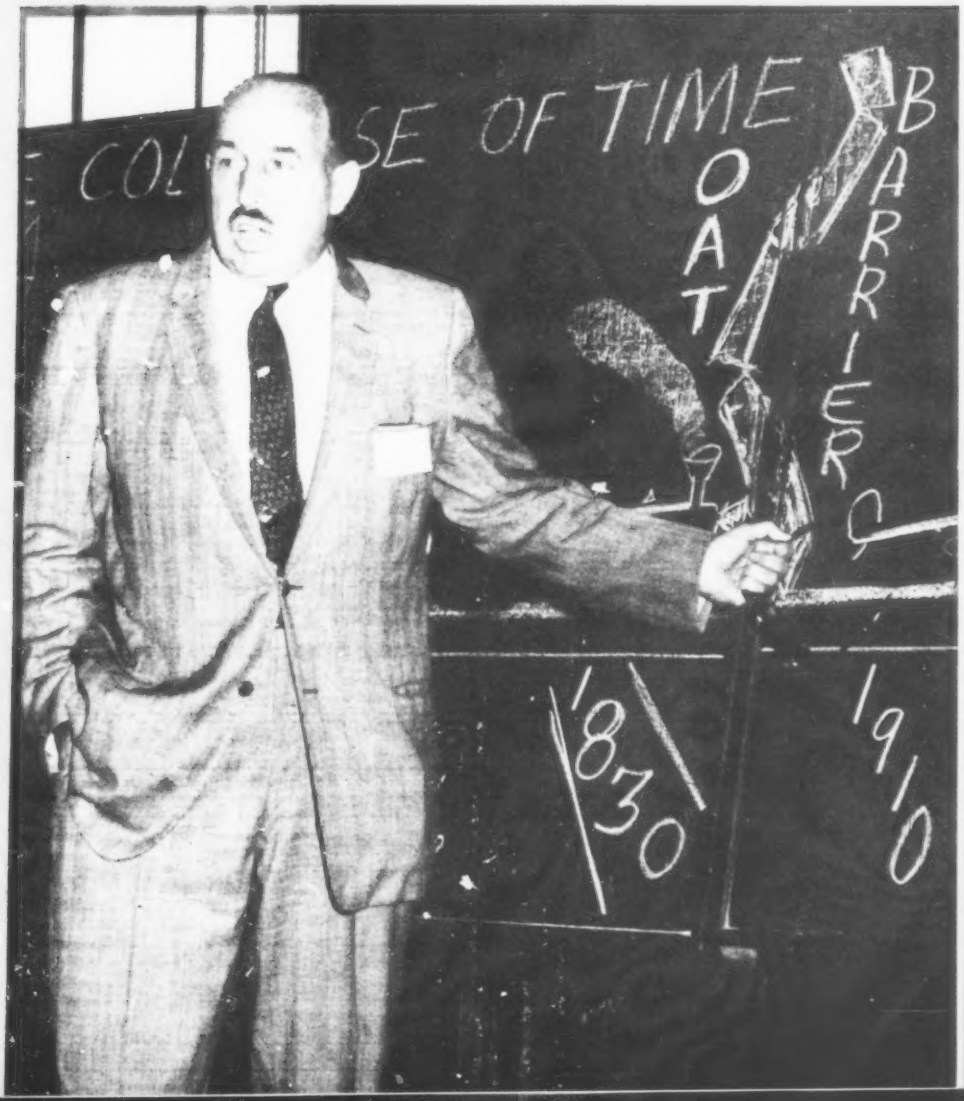
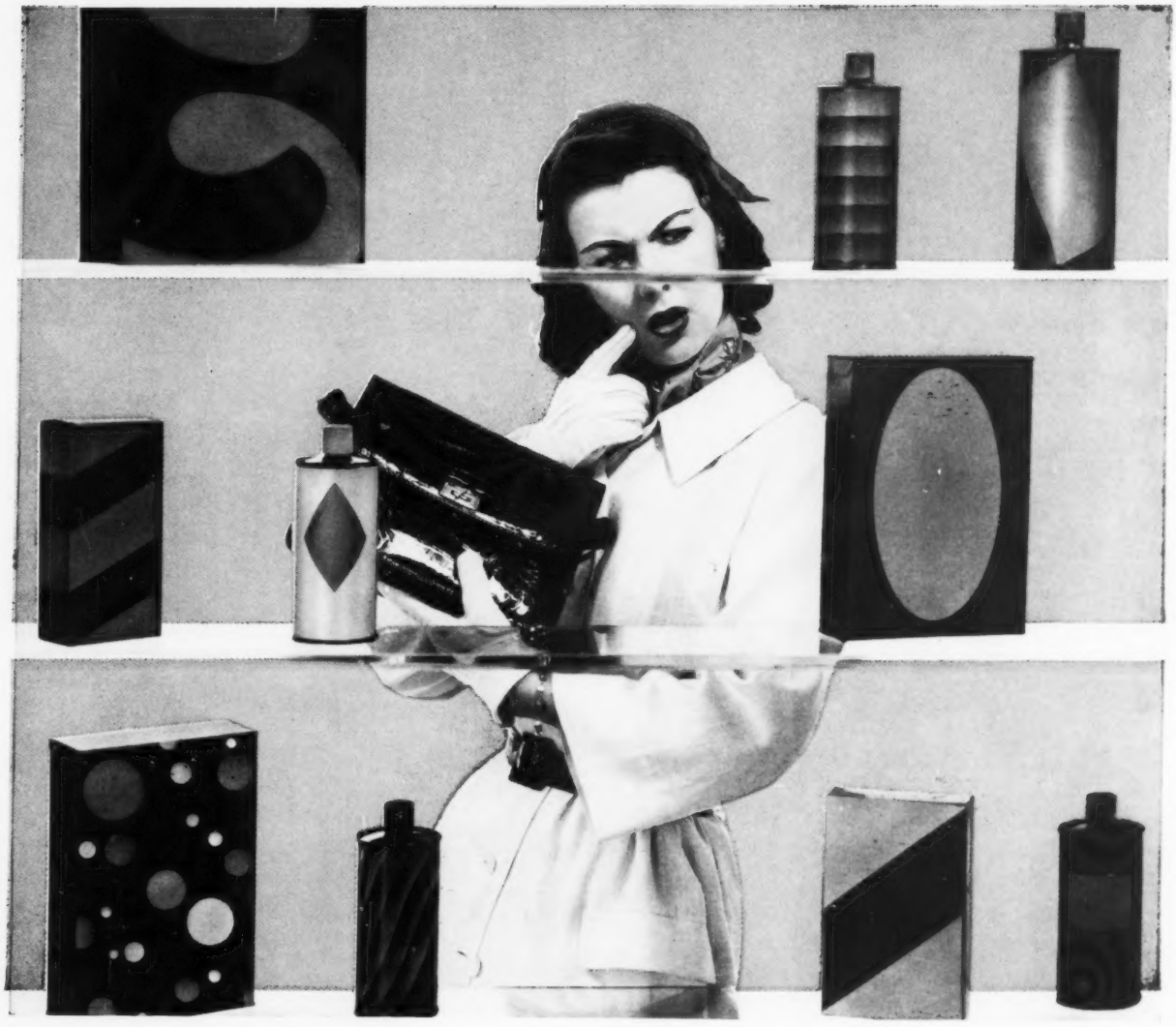
J. Lewis Powell of the Department of Defense, keynote speaker of the soap industry meeting in New York this month, with blackboard he uses to explain his talk, "The Collapse of Time." Meeting story on page 37.





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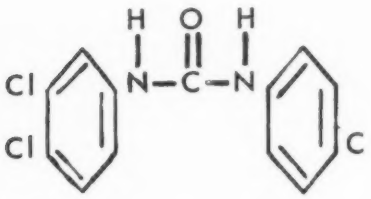
New Germicide for Soap

By Daniel P. Roman, E. Harvey Barnett and Robert J. Balske*

Monsanto Chemical Co.
St. Louis, Mo.

WITH the discovery that hexachlorophene, 2,2′-methylenebis (3,4,6-trichlorophenol) maintained its activity in soap (1), a new era in cutaneous antisepsis began. Prior to this development no compound was available which could so successfully maintain the number of resident bacteria on the skin at such reduced numbers. Years later, a second compound was introduced. Shumard *et al.* (2) described the properties of a related compound, bithionol, 2,2′-thiobis (4,6-dichlorophenol) as a skin antiseptic. Vinson (3) in 1954 introduced tetramethylthiuramdisulfide as a third bacteriostatic agent compatible with soap. These products have gained acceptance and have been widely used in the soap and cosmetic industries for several years.

This paper describes an outstanding new compound, 3,4,4′-trichlorocarbanilide (TCC) as a skin antiseptic. The synthesis of this and related compounds along with preliminary reports of their *in vitro* activity was published by Beaver *et al.* (4) in early 1957. TCC is a chlorinated diphenyl urea having the following structure:



*Reprinted from the Proceedings of the Scientific Section of the Toilet Goods Association, Inc., No. 28:12 (1957).

It is a fine white powder with a molecular weight of 315.6 and a melting point of 252°C. It is very sparingly soluble in water, in the order of 0.1 ppm at pH 7.0 at 25°C. This low solubility may in part explain its apparent low activity in zone-of-inhibition tests where diffusion in an aqueous medium is important. Solubility in organic solvents for the most part is also quite low as illustrated in Table I.

Table I. Solubility of 3,4,4′-Trichlorocarbanilide

Solvent	Solubility, %
Dimethyl phthalate	< 1
Cottonseed oil	< 0.5
Propylene glycol	ca. 1
Acetone	ca. 4
Dioxane	ca. 2
Methyl isobutyl ketone	ca. 4
Dimethyl formamide	ca. 35

The material *per se*, diluted in organic solvents, or at a 2 per cent concentration in a toilet soap does not discolor on prolonged exposure to light, nor does it form highly colored complexes in the presence of iron.

Toxicity

ACUTE oral toxicity of 3,4,4′-trichlorocarbanilide as a water suspension was determined in rats. There was no mortality at the highest single dosage employed, 10 g/Kg. The dosage was increased to 25 g/Kg given in 4 equal feedings twice daily for two consecutive days, again there were no deaths. Rats autopsied after 1 week's observation appeared normal by microscopic examination.

Patch tests were done on 50 human subjects using powdered TCC. The primary application was of 48 hours duration. At the end of 48 hours the patches were removed and the reactions read. Twenty-four hours after removal of the patches, the patch sites were re-examined for delayed reactions. Two weeks later a challenge patch was applied to determine sensitization. After 24 hours, those patches were removed and the reactions read. Twenty-four hours later the patch sites were re-examined for delayed reactions. None of the subjects showed any immediate or delayed reactions following the primary or challenge applications.

This test was repeated using soap containing 2 per cent 3,4,4′-trichlorocarbanilide. The test soap was used in 10 per cent aqueous solutions in the patch test. Twelve of the subjects showed 1+ reactions following the primary applications. None of the subjects showed any immediate or delayed reactions following the challenge application. The 1+ reactions are characteristic of a 10 per cent soap solution.

The conclusion was reached that 3,4,4′-trichlorocarbanilide is neither a primary irritant nor a sensitizer.

Ophthalmic and abraded skin tests on rabbits confirmed that TCC has very low mammalian toxicity.

TCC exhibits a high degree of *in vitro* activity against gram positive organisms normally found on the skin. Table II illustrates

effective dilutions at which TCC may be expected to inhibit these organisms.

Table II. Bacteriostatic Actvity of 3,4,4'-Trichlorocarbanilide

Organism	Dilution Inhibiting
	million
Micrococcus pyogenes var. aureus ATCC 6538	1:10
Micrococcus pyogenes var. var. albus ATCC 4840	1:5
Micrococcus pyogenes (coagulase +)	1:10
Corynebacterium diphtheriae ATCC 296	1:10
Bacterium ammoniagenes ATCC 6871	1:10
Diplococcus pneumoniae	1:10
Streptococcus viridans	1:10
Lactobacillus casei	1:10
Bacillus subtilis	1:1

These are relative figures, and inhibition at a dilution of 1:10 million does not necessarily represent an end point. We have had difficulty in establishing a precise end point for TCC against *Micrococcus pyogenes* var. *aureus*. End points of from 1:10 million to 1:75 million have been obtained, with 1:30 million appearing to be the most likely figure.

Since the true effectiveness of a bacteriostat for cutaneous antisepsis depends on its *in vitro* activity and its substantivity to skin, handwashing tests must be the final measure of effectiveness. The Cade (5) handwashing test was the method of choice. Briefly this test requires that subjects be used who have not been using antiseptic soaps or cosmetics for two weeks prior to test. The initial count is then determined by using a control soap in a series of five washes. After 5, 11, and 12 days use of the test soap, additional counts are similarly made to follow the course of the reduction of the numbers of bacteria on the skin. It is important to note here that we felt it necessary to issue definite instructions to the subjects regarding their part in the test. Subjects were told to use the test soap a minimum of three times a day, they were also forbidden the use of any soap, solvent, cosmetic, or any other substance which would add to or subtract from the bacteriostatic film being built up on the hands. Rubber gloves are issued to each subject for use in such unavoidable tasks as dishwashing which would expose the hands to cleansing products other than the test soap. While we cannot be sure that our instructions are always carried out, it does impress the subjects with the fact that their cooperation is required.

Objections to the use of the per cent reduction as a measurement of activity have been expressed in the literature. Quinn *et al.* (6) observed that the normal flora of the hands fluctuates from day to day, and pointed out that this is the greatest error involved in measuring reductions of the bacterial population. Baer and Rosenthal (7) commented on the inadequacies of per cent reduction in the statistical handling of the data.

The purpose of incorporating a bacteriostat into toilet soaps is primarily to reduce the number of bacteria on the skin to the point where maximum cosmetic and deodorant benefits are obtained. Despite the disadvantages involved, expressing this reduction as a certain per cent of an original count has some merit. We have retained these units and at the same time we have eliminated the major objections to this method. Since the initial count of a subject is not a fixed characteristic of an individual, we have taken the mean of several hundred initial 5th basin counts as the proper base from which to obtain our per cent reduction figures. We have chosen the log of the count in thousands for convenience in handling the data. The mean initial 5th basin count is then 3.20 log units, equivalent to 1,580,000 bacteria. The true efficiency of a bacteriostat can then be stated in terms of the mean final count in log units, or transformed to per cent reduction from the initial standard count.

In Table III the result of adding TCC at various levels is tabulated. With this test we can expect the final count to be as low as log 2.0, or 100,000 organisms.

Table III. Effect of TCC on the Resident Bacteria

% TCC	Log of the 5th Basin Count in Thousands Standard Initial	5th Day	11th Day	12th Day
0.5	3.2	2.3321	2.3926	2.2567
1.0	3.2	2.3650	2.0276	2.1168
2.0	3.2	1.7464	1.5119	1.5386

These data are presented in the more familiar form, as per cent reduction in Table IV. The per cent reduction has been obtained by transforming the logs back to counts and calculating from an initial count of 1,580,000.

Table IV. TCC Test Results as Per Cent Reduction

TCC %	Per Cent Reduction 5th Day	11th Day	12th Day
0.5	86.4	84.4	88.5
1.0	85.3	93.2	91.7
2.0	96.5	97.9	97.8

Although the count has been greatly lowered by all three concentrations of TCC, the reduction achieved by the 2 per cent concentration is significantly greater than that obtained by the use of the lower concentrations.

These results can have meaning only if related to present knowledge. To see where TCC stands in relation to other bacteriostats, compare the data presented in Table V.

For the number of subjects tested in each group, the most probable per cent reduction represents our best estimate for true reduction. The range of per cent reductions represents the 95 per cent confidence limits within which the true reduction lies. We have 96 per cent confidence that TCC at a 2 per cent level is superior to the next most effective material (bithionol) by our test, and, of course, somewhat more confidence that TCC is superior to the other alternatives tested.

Thus we have a bacteriostat which at the 2 per cent level is stable and effective. The antimicrobial activity of 3,4,4'-trichlorocarbanilide has been demonstrated to

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"The Acceleration of Change" Theme of

Soap Industry Meeting

32nd annual gathering of Soap Association in New York being held January 22 to 24

THE quickened pace at which technological changes are taking place in the world today and their impact on the research, production and merchandising of soaps and detergents will form the theme of the 32nd annual meeting of the Association of American Soap & Glycerine Producers. The soap industry convention will be held Wednesday, Thursday and Friday, Jan. 22, 23 and 24 at the Waldorf-Astoria Hotel, New York.

Dramatizing the theme of this year's meeting will be a talk, entitled "The Collapse of Time," given by J. Lewis Powell, Defense Department aide. Mr. Powell's presentation will be given during the general session, Thursday morning, Jan. 23, the day the meeting formally gets under way. The previous day will be given over to separate meetings of the Fatty Acid Producers Council and the Industrial Division of the Soap Association.

The Fatty Acid group meeting, Wednesday morning, Jan. 22, begins with a business session, at which committee reports will be presented and the election of officers for the coming year. A separate luncheon of the Fatty Acid Producers Council will feature an address by Ralph L. Ericsson, general sales manager of Texas Butadiene & Chemical Corp. His topic will be "The 'One Man Band' Sales Manager." Following luncheon the Council's program calls for the presentation of three technical papers and the showing of a motion picture. Arthur R. Bethke, vice-president of Darling & Co., Chicago, will preside over the afternoon session. E. H. Bluman, vice-president of the Harchem Division of Wallace & Tiernan, Inc., Belleville, N. J., chairman of the Fatty Acid Producers Council, presides at the morning session and luncheon.

Papers to be presented Wednesday afternoon, Jan. 22, at the fatty acid meeting include: "Vinyl Stearate and Related Esters," by Charles J. McFarlin, president of Air Reduction Chemical Co.; "Research on a Middle-Size Budget," by Charles H. Kline, scientific director of Shulton, Inc., Clifton, N. J.; and "Understanding the Creative Process," by Maurice J. Kelley, director of industrial specialties laboratories of Nopco Chemical Co., Harrison, N. J. The session concludes with a motion picture, "Quality Control of Lubricating Greases," furnished by Socony-Mobil Oil Co., New York.

Also meeting Wednesday, Jan. 22, is the Industrial Division of the Soap Association. The morning session features a meeting of the skin cleaning group, presided over by Edward Randa of Armour and Co., Chicago, chairman. One of the highlights of this meeting will be a report on public relations activities of the group, including plans to republish its book on prevention of skin disorders. At a luncheon of the Industrial Division, which will be presided over by Frank J. Pollnow, Jr., president of Vestal, Inc., St. Louis, chairman,

J. Lewis Powell
"The Collapse of Time"

A. C. Nielsen
". . . Products in a World of Change"

Arno H. Johnson
". . . Change in . . . Market . . ."

Daniel Schoor
"Reporter's Eye-View of Russia"

Samuel L. H. Burk
"Management Opportunities . . ."

Harry Deane Wolfe
". . . Motivation Research . . ."

officers of the division and chairmen of its two groups will be elected for the coming year.

Post-luncheon activities of the Industrial Division include a meeting of the building maintenance group. Earl Brenn of Huntington Laboratories, Inc., Huntington, Ind., chairman of the group, will preside. One of the features of this meeting is a report on the group's publicity program. Henry T. Rockwell, president of Jones, Brakeley & Rockwell, Inc., New York, will present the report. Mr. Rockwell will review the results of the major activity of the group: publication last year of the booklet, "Building and Equipment Sanitation Maintenance — Principles and Practices."

An all-day meeting of the Technical Advisory Steering Committee is scheduled for Wednesday, Jan. 22. Presiding will be Frank J. Coughlin, chairman. Mr. Coughlin is associate director of the product development division of Procter & Gamble Co., Cincinnati. Following a morning business meeting, the Technical Advisory Committee will have a group luncheon and a general meeting in the afternoon.

The day's activities conclude with a reception and cocktail party, beginning at 5:00 p.m. in the Jade Room. *Soap & Chemical Specialties* magazine is host for the affair.

Formal opening of the 32nd annual meeting of AASGP takes place Thursday morning, Jan. 23, with the address of welcome and review of the year by Soap Association president E. B. Osborn, head of Economics Laboratory, Inc., New York. Harold G. Shelton, director of marketing, dyestuff and chemical division of General Aniline & Film Corp., New York, presides. It is at this session that Mr. Powell will discuss the speed-up in technological developments in his talk, "The Collapse of Time."

Change as it affects marketing of soaps and synthetic detergents will be covered in a presentation by A. C. Nielsen, Jr., president of A. C. Nielsen Co., Chicago. Taking as his subject, "Factors in Building and Maintaining Successful Products in a World of Change," Mr. Nielsen will give his company's annual report on sales of household soaps and synthetic detergents in grocery stores in 1957.

The group luncheon Thursday, Jan. 23, will be highlighted by a talk, "A Reporter's Eye-View of Russia," by Daniel Schorr, Moscow correspondent for Columbia Broadcasting System. Mr. Schorr, who arranged for the exclusive television

Charles H. Kline
"Research on Middle Size Budget"

Leo Pasternak
Answers on Glycerine

William G. Werner
Cleanliness Promotion

E. B. Osborn
AASGP President

Roy W. Peet
AASGP Secretary-Manager

E. H. Bluman
Presides Jan. 22

interview with Communist party boss Nikita Krushchev, returned to New York late in December. He is expected to give an up-to-the-minute report on Russia in the post-Sputnik era.

Presentation of the glycerine research awards also takes place at the Thursday luncheon, which is presided over by Ralph A. Hart, executive vice-president of Colgate-Palmolive Co., New York, and board member of the Soap Association.

The Glycerine Division of AASGP will hold its first meeting Thursday morning, Jan. 23, with George W. Huldrum, Jr., manager of the chemical sales division of Shell Chemical Corp., New York, chairman of the division presiding. Getting under way at 11:00 a.m. the program calls for reports of glycerine committees, the division manager's report, a short business meeting and election of officers for the coming year.

Resuming its deliberations following the luncheon, the Glycerine Division will hear four papers. Included is "World Survey of Inedible Tallow and Grease," by Carroll V. Danielson, acting director, Food Industries Division, BDSA, U. S. Dept. of Commerce. James E. Sayre, manager of the market research department of Barrett Division of Allied Chemical & Dye Corp., New York, will speak on "Alkyd and Competitive Surface-Coating Resins." The outlook for the use of glycerine in toiletries is to be given in a paper, "Future Developments in the Cosmetic Industry," by Henry R. Kreider, director of research for Chesebrough-Pond's, Inc., New York. The final feature of the Glycerine Division's program for the afternoon of Jan. 23 is a question and answer type review of the world glycerine outlook conducted by Leo Pasternak, foremost authority on glycerine marketing, and president of L. Pasternak & Co., New York.

Another social event, the traditional "Maid of Cotton" fashion show beginning at 4:00 p.m. concludes the day's formal program.

The second general session, preceded by the annual convention breakfast, for which *True Story* magazine is host, gets under way at 10:00 a.m., Friday morning, Jan. 24, final day of the meeting. With Adrien C. Pelletier, chairman of the board of Purex Corp., South Gate, Calif., presiding, four presentations are scheduled. William G. Werner, director of Public and Legal Services for Procter & Gamble Co., Cincinnati, and chairman of the cleanliness promotion committee, will discuss the work of his

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Harold G. Shelton
Presides at Opening Session

Ralph A. Hart
Presides at Jan. 23 Luncheon

Frank J. Coughlin
Presides Jan. 22

TGA Scientific Section Meets Told of Novel New Polymer

A NEW bacteriostat for toilet soaps and a new polymer for use in synthetic toilet bars, shampoos and hair sprays were among novel developments presented at the 26th meeting of the Scientific Section of the Toilet Goods Association. The all day meeting was held at the Waldorf-Astoria Hotel, New York, Dec. 9. In spite of the rigors of the New York subway strike the program consisting of seven papers was presented before a large audience.

The morning session opened with a paper by Lloyd Osipow of Foster D. Snell, Inc., and Lester D. Berger, Jr., of Union Carbide Chemicals Co., New York. Synthetic detergent bars and shampoos, hair sprays, toothpaste, and other personal products benefit from incorporation of a new water-soluble high polymer developed by Union Carbide Chemicals Co. and offered under the trade name "Polyox", according to the authors. (*See SOAP and Chemical Specialties*, Dec. 1957, p. 269.)

The new polymers are generally not compatible with ethylene oxide derived type nonionic surface active agents. They are compatible with nonionic sucrose esters, and with cationic and anionic surfactants, including soap. Two per cent additions of "Polyox" gum to aqueous solutions of the sucrose esters and of anionic syndets increase the creaminess and lubricity of the lather, but destroy the foaming action of soap solutions. Viscosity of all surfactant solutions is substantially increased.

With improved lubricity of detergent solutions and their lather goes of course improved "feel" on skin and hair. Alkyl aryl sulfonates can thus be used successfully in personal products without producing a tacky feeling when the skin is almost dry. Thus it is possible to formulate shampoos and hand cleaners with enhanced consumer appeal using less costly detergents. The "Polyox" gums can of course also be used to advantage in formulating manual dishwashing compositions.

The presence of one to two per cent of the polymer in detergent bar formulations improves lubricity of the lather and of the adsorbed detergent film on the skin, thus eliminating the feeling of dryness otherwise associated with the use of these products. Creaminess of the lather is also increased. Satisfactory detergent bars can be formulated from dodecylbenzene sulfonate, one or two per cent of the gum, whitening agent and perfume.

Hair sprays can be compounded with the polyethylene oxide gums, which, however are not soluble in anhydrous ethanol. In aqueous systems methylene chloride is therefore employed as a solvent and a combination of methyl chloride and fluorinated hydrocarbon used as a propellant. Only a small amount of the fluorinated propellant need be employed to obtain a non-flammable spray. Dimethyl hydantoin formaldehyde resin is added for adhesion to the hair. Ester-type plasticizers may be used to ensure flexibility of the film. Lanolin derivatives and fatty acid esters can be included for gloss. Hair sprays based on the polyethylene oxide gums form films of low hygroscopicity.

In toothpaste compositions these gums improve "mouth feel", probably owing to the lubricity improving properties of the gum solution.

A new bacteriostat for toilet soaps was described in a paper entitled "Cutaneous Antiseptic Activity of 3,4,4'-Trichlorocarbanilide", by Daniel P. Roman, E. Harvey Barnett, and Robert J. Balske of Monsanto Chemical Co., St. Louis, Mo. A concentration of two per cent of TCC in soap shows superior skin degerming activity in a series of handwashing tests. The compound is color stable, exhibits no photosensitivity and no discoloration in the presence of iron. It has been demonstrated to be neither a primary skin irritant nor a sensitizer.

Standard tests showed TCC to have extremely high in vitro activity against gram positive organisms normally resident on the skin. At a 50:1 ratio of soap to bacteriostat in nutrient agar, TCC inhibits *Micrococcus pyogenes* var. *aureus* at a dilution of 1:30,000,000. Its bactericidal activity is higher than that of hexachlorophene or bithionol.

In a paper dealing with "The Effect of Creams and Lotions on the Moisture Retention of the Skin", C. Fox and D. H. Powers of Warner-Lambert Pharmaceutical Co. reported a method evolved for the measurement of moisture retention in the presence of films consisting of soap, waxes, fats, oils, silicones, esters, humectants, and surfactants. Soap films were shown to have little effect upon moisture balance of the human skin. Alkyl aryl sulfonates were found to increase the loss of moisture and quaternaries reduced the moisture to a very high degree. The presence of silicones demonstrably counteracted dehydration.

R. C. Gergle, W. T. Gregory and C. W. Todd of Dow Corning Corp., Midland, Mich., presented a study of "Silicone Defoamers — Physiological Aspects and Defoaming Efficiency". At a use concentration of ten parts per million, silicones control normal foam without affecting detergency or emulsifying properties of surface active agents, according to the authors. In view of their toxicological inertness silicones offer a desirable method of foam control to the formulator of products designed for personal use.

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Analysis Of

Alkylbenzene Sulfonates

By E. W. Blank*
Colgate-Palmolive Co.
Jersey City, N. J.

SYNTHETIC detergents are currently being produced in vast quantities by the sulfonation of alkylated aromatics, the most common aromatic base being dodecylbenzene. Major producers of detergent alkylate, as it is commonly termed, are also experimenting with pentadecylbenzene. The analytical methods discussed in this paper are applicable to both types of material but if necessary, they can be differentiated on the basis of their molecular weight as determined by titration of the benzidine hydrochloride complex. The average molecular weight of sodium dodecylbenzene sulfonate is 348; that of the corresponding pentadecyl compound is about 380.

Commercial alkylbenzene sulfonates are sold as solutions, slurries or roll dried powders and consist essentially of sodium alkylbenzene sulfonate (the active ingredient), sodium sulfate, moisture and neutral oil.

The neutral oil contains not only unreacted alkane, but also varying amounts of sulfones and dealkylation products. Fortunately the amount of neutral oil in a properly produced alkylbenzene sulfonate is small, usually less than one per cent, and it need not be broken down analytically in commercial practice. If, however, the necessity should arise for a complete analysis of the neutral oil, one can employ ultraviolet or infrared techniques and deduce the composition by a study of the resultant spectra.

*Paper presented at the 44th annual meeting of the Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 11.

As stated above, a commercial sodium alkylbenzene sulfonate is not a pure chemical entity, but a mixture and to determine its chemical composition the following constituents must be determined:

1. Alcohol insoluble (sodium sulfate)
2. Active ingredient (sodium alkylbenzene sulfonate)
3. Neutral oil
4. Moisture

A detailed survey of the literature on methods of analysis of synthetic detergents has been made by Harris and Bernstein (1). This publication is of great value to the analytical chemist. It is arranged chronologically and demonstrates the striking fertility and growth of the subject. Other comprehensive reviews have been written by Spangler (2) and Tschoegl (3). The analytical methods described in this paper are in general use and no claim of originality is intended or to be inferred.

Analytical Methods

A MAJORITY of the methods described in the literature for the determination of alkylbenzene sulfonates are based on the observation that large cationic molecules react with anionic compounds to yield products that are water insoluble but soluble in chloroform or carbon tetrachloride (4).

Upon shaking an acidified, two phase (chloroform and water) system containing methylene blue and an anionic surfactant, the blue color concentrates almost exclusively in the chloroform layer. If, as an example, the two phase system is titrated with a solution of the quaternary ammonium salt, cetyl trimethyl ammonium bromide, the color is shifted almost completely into the aqueous layer.

The mechanism of the reaction can be expressed as shown at foot of page.

With this method a difficulty arises in the standardization of the cationic reagent. Task Group No. 15 of ASTM Committee D-12 is currently investigating this problem and as of July 2, 1957 expressed the tentative opinion that while a standardization with potassium dichromate is stoichiometric, the cationic reagent standardized in this manner is not suitable for the assay of anionic detergents. This conclusion is based on the fact that cooperative experimental work has indicated that the reaction between alkylbenzene sulfonate and the cationic reagent is not stoichiometric, due to variations in alkyl chain length and structure.

For maximum accuracy, the alkylbenzene sulfonate should first be characterized by indirect analysis and subsequently employed to standardize the cationic reagent. Thus the first step in the determination of alkylbenzene sulfonate is to isolate a pure sample of the latter in the laboratory. This op-

$$\underset{(CHCl_3 - \text{Blue})}{R \cdot Ar \cdot SO_3MB} + \underset{(\text{Colorless})}{CTA^+ (H_2O)} \rightleftharpoons \underset{(\text{Colorless})}{R \cdot Ar \cdot SO_3CTA (CHCl_3)} + \underset{(H_2O - \text{Blue})}{MB^+}$$

eration is readily performed quantitatively and yields the purity of the starting material directly. If the starting material happens to be the sample one is interested in analyzing, the problem is solved. Therefore, if one desires to analyze a single sample of raw material, the determination of alcohol soluble material is sufficient as it yields the percentage of active ingredient present in the sample. If it is required to run a series of determinations on different samples, one may proceed to determine the molecular weight from the alcohol soluble material and employ the latter value in the volumetric method.

Fortunately the molecular weight does not vary appreciably from batch to batch of dodecylbenzene sulfonate and the volumetric method is therefore a valuable means of control. The molecular weight should, however, be checked occasionally. If the highest possible accuracy, rather than rapid control, is desired, the alcohol soluble material should be determined and corrected as explained in the method given below.

Sampling

SLURRY samples that have been allowed to cool with resulting separation or crystallization should be heated, in the tightly closed original container, to 40-50°C. on a steam bath or in an oven. The entire contents of the sample bottle are then thoroughly mixed by mechanical means such as a Waring Blendor or Effenbach homo-mixer. Avoid unnecessary or excessive transferring. Stirring and sampling must be done in as short a period of time as possible to avoid moisture change. When the slurry is uniformly mixed, a grab sample is taken for analysis.

In the case of a dried powder, select approximately 50 grams of well mixed sample and grind to a fine powder. Transfer the ground material to a tightly covered container. A suggested method for grinding solid material is to transfer a portion of the well mixed sample to a plastic bag and grind in the bag with a rolling pin. This technique eliminates errors due to moisture change.

Solutions require only to be thoroughly mixed.

Determination as Alcohol Soluble Material (Single Determination)

REAGENTS REQUIRED: Neutral ethyl alcohol (95 per cent). Freshly boiled ethyl alcohol, 95 per cent or higher and neutral to phenolphthalein indicator; either Formula No. 3A or No. 30 of the U. S. Bureau of Internal Revenue.

PROCEDURE:

1. Accurately weight 2 ± 0.1 grams of the sample and transfer to a tall type beaker.
2. Add 200 ml of boiling neutral alcohol to the sample in the beaker and warm on the steam bath with occasional stirring for about 15 minutes. Allow the material to settle for several minutes.
3. Carefully decant the clear supernatant alcohol through a tared Gooch crucible.
4. Add 100 ml of boiling neutral alcohol to the residue in the beaker and repeat the operations outlined in Steps (2) and (3).
5. Repeat Step (4) two more times and then transfer the residue to the Gooch crucible with the aid of neutral alcohol and continue washing the insoluble matter until several ml of the washings evaporated on a watch glass leaves no residue. Keep the residue in the Gooch wet at all times to prevent cracking of the precipitate, which results in incomplete washing.
6. Dry the residue in the Gooch at 105°C. and finally ignite to constant weight in a muffle furnace at a temperature of not more than 600 to 650°C. or to a dull red in the absence of a pyrometer.

CALCULATIONS:

$$\frac{\text{Weight of Residue (Step 6)} \times 100}{\text{Weight of Sample (Step 1)}} = \%\ \text{Alcohol Insoluble (Sodium Sulfate) on "as received" basis}$$

$$100\% - (\%\ \text{Alcohol Insoluble} + H_2O + \text{Neutral Oil}) = \%\ \text{Organic Alcohol Soluble (Na alkylbenzene sulfonate) on "as received" basis}$$

PRECISION: Based on experimental results, the intra laboratory precision (95 per cent limits) for simultaneous duplicate determinations of alcohol insoluble by one analyst is ± 0.32 per cent at an alcohol insoluble level of 75 per cent.

The overall precision (intra laboratory) is statistically estimated (95 per cent limits) to be ± 0.47 per cent at an alcohol insoluble level of 75 per cent.

Determination by Cationic Titration (Multiple Determinations)

A. *DETERMINATION OF MOLECULAR WEIGHT*

APPARATUS REQUIRED: pH Meter; mechanical stirrer — non-magnetic; filter cone — suitable for supporting filter paper when employing vacuum.

REAGENTS REQUIRED: Benzidine hydrochloride solution $(NH_2C_6H_4)_2 \cdot 2HCl$, 5 per cent solution in distilled water; 0.1N sodium hydroxide (NaOH); phenolphthalein indicator solution, 1 per cent in 95 per cent ethyl alcohol; hydrochloric acid (HCl) 1:1, add 1 part of c. p. HCl (sp. gr. 1.183) to 1 part of distilled water; normal pentane, distillation range 92-105°F.; ethyl alcohol (95 per cent) (either formula No. 3A or No. 30 of the U. S. Bureau of Internal Revenue may be employed.)

PROCEDURE:

1. Weigh a portion of the sample containing 2.5 ± 0.5 grams of Na alkylbenzene sulfonate and transfer to a 250 ml beaker.
2. Add 100 ml of hot alcohol and heat almost to boiling on a hot plate or steam bath. Break up any lumps of sample with a stirring rod, stir well and continue to heat for 3 to 5 minutes.
3. Decant and filter the supernatant alcohol through a Whatman No. 41 filter paper and collect the filtrate in a 400 ml beaker.
4. Place the beaker containing the filtrate on a steam bath and evaporate almost to dryness with the aid of a stream of clean, dry air.
5. Add 200 ml of water to dissolve the residue from Step (4). Add 1:1 hydrochloric acid dropwise until the solution is acid to blue litmus paper.
6. Add Benzidine Hydrochloride reagent, with stirring, until precipitation is complete.
7. Filter the solution through a Whatman No. 41 filter paper using suction and a filter cone. Wash the precipitate with water until the washings are neutral to blue litmus paper. See notes (a) and (b). Dry the precipitate with the aid of suction.
8. Transfer the precipitate to a beaker and wash several times by decantation with Normal Pentane, filtering the washings through a Whatman No. 41 filter paper. Transfer the precipitate to the filter and wash several times with Normal Pentane.
9. Transfer the precipitate to an evaporating dish and place in a 100° oven until dry. See note (c). Grind the precipitate to a fine powder using a mortar and pestle.
10. Spread the ground powder over the surface of an evaporating dish and dry in an oven regulated at 100°C. for 1 hour.
11. Weigh 1.3 to 1.5 grams of the dried benzidine-A.I. complex (to the nearest 0.1 milligram) into a 250 ml beaker. Add 50 ml of alcohol and swirl to dissolve the complex. Prepare a blank by adding 50 ml of alcohol to a separate 250 ml beaker.
12. Place the beaker containing the dis-

solved complex on a titration stand, insert a stirrer and pH electrodes into the solution. Carefully titrate to a pH of 8.5 using 0.1N Sodium Hydroxide.

13. Titrate the blank to a pH of 8.5 as described in step (12).

CALCULATIONS:

$$\frac{\text{(Weight of Benzidine Complex (Step 11) x 1000)}}{\text{(ml NaOH for Sample (12) — ml NaOH for Blank (13)) x N}} - 70 = \text{Molecular Weight (Sodium Salt)}$$

Molecular Weight — 102 = Molecular Weight of the Alkylbenzene

PRECISION: Based on experimental results, the intra laboratory precision of this method is statistically estimated (95 per cent limits) to be ± 1.8 at a molecular weight level of 350.

For simultaneous duplicate determinations by one analyst, the estimated precision is ± 1.3 at a molecular weight level of 350.

NOTES:

a. The first ten steps of this procedure involve the preparation and purification of the alkylbenzene sulfonate-benzidine complex and need not be quantitative.

b. The first portion of filtrate should be tested for completeness of precipitation by the addition of Benzidine Hydrochloride Solution. No precipitate should form. If a precipitate does form, the procedure must be repeated using additional Benzidine Hydrochloride reagent.

c. The temperature of the oven must not exceed 105°C. since the benzidine-active ingredient complex decomposes above this temperature.

B. DETERMINATION OF ALKYLBENZENE SULFONATE

APPARATUS REQUIRED: Light source consisting of a 25 watt elongated filament type bulb behind a frosted glass panel.

REAGENTS REQUIRED: 0.005N Cetyl trimethyl ammonium bromide — $CH_3(CH_2)_{15}(CH_3)_3NBr$ (CTAB). Weigh 1.80 gram of the reagent and transfer to a 1 liter volumetric flask. Dilute to volume with water at room temperature and thoroughly mix. Filter the solution.

Methylene blue indicator solution. Dissolve 0.1 gm of methylene blue chloride (certified grade) in 50 ml of water and dilute ot 100 ml with water in a volumetric flask. Mix well. Pipet a 30 ml aliquot into a beaker or 1 liter volumetric flask, add 6.8 ml of concentrated sulfuric acid and 50 grams of sodium sulfate. Dissolve and dilute to 1 liter with water at room temperature and mix well.

Ethyl alcohol (95 per cent). Either formula No. 3A or No. 30 of the U. S. Bureau of Internal Revenue may be employed. Chloroform, C.P.

STANDARDIZATION OF CTAB SOLUTION:

1. Weigh 4.0 ± 0.3 grams of the sample of alkylbenzene sulfonate (approximmately 50 per cent active material content), dissolve in water and transfer to a 1 liter volumetric flask. Dilute to volume with water at room temperature. Mix thoroughly.
2. Pipet a 10 ml aliquot from Step (1) into a 100 ml glass stoppered mixing cylinder. Add 30 ml of water, 25 ml of methylene blue indicator solution and 15 ml of chloroform. Titrate with 0.005N CTAB as described in steps (4) to (6) of the following titration procedure. The titration should be repeated three times in order to obtain an average value.

CALCULATION:

$$\frac{\text{(\% Organic Alcohol Soluble) (Average of 3 determinations) x (Weight of Sample (in Aliquot Step 2)) x 10}}{\text{(ml CTAB Solution — 0.1 ml) x (Average of 3 determinations) x 348}} = \text{Normality of CTAB Solution}$$

CATIONIC TITRATION:

1. Accurately weigh (to the nearest 0.1 milligram) a representative sample equivalent to 48 to 88 milligrams of active ingredient into a 100 ml volumetric flask.
2. Add a small volume of water and dissolve the sample by gentle swirling. Finally bring to volume with water at room temperature.
3. Pipet a 25 ml aliquot into a 100 ml glass stoppered mixing cylinder. Add 15 ml of chloroform, 25 ml of methylene blue indicator solution and 15 ml of water. See Note (a).
4. Stopper the cylinder and shake vigorously.
5. Titrate the solution in the mixing cylinder with the standardized CTAB solution employing a microburet. At the beginning of the titration, add 5 ml of the CTAB solution and shake vigorously. As the titration progresses, add smaller increments of the CTAB with vigorous shaking, adding 0.10 ml increments as the endpoint is approached.
6. Use a light source for detecting the endpoint. The blue color is first concentrated in the bottom chloroform layer and gradually shifts to the upper aqueous layer as the reagent is added. The endpoint is reached when the lower layer is less blue than the upper layer and has a green appearance.

CALCULATIONS: See note (b).

$$\frac{\text{(ml CTAB (Step 6) — 0.10) x N x 0.348 x 100}}{\text{Weight of Sample in Aliquot (Step 3)}} = \text{\% Na Alkylbenzene Sulfonate}$$

PRECISION: No statistical study has been made. At a 35 per cent level replicate determinations can be expected to check within ± 0.2 per cent. At an 80 per cent level replicate results can be expected to check within ± 0.4 per cent.

NOTES:

a. To obtain accurate results, the aliquot should contain 12-22 milligrams of anionic, M.W. 280-380, and the titration should be between 5 and 15 ml. Maintain the titration volume at the center of the range (8-10 ml) for the most accurate results. Vary the sample weight or aliquoting scheme if these conditions are not met. However, no aliquot over 30 ml should be taken.

If the sample weight becomes inconveniently small for representative sampling, a larger sample weight may be dissolved in 500 ml of water and a 10 ml aliquot taken for analysis. In the latter case, add the aliquot to 15 ml of chloroform, 25 ml of methylene blue indicator solution, 30 ml of water and proceed with the titration. Low results are obtained when the alkyl chain length is less than eight.

b. The factor 0.10 in the calculation is a volume correction to compensate for over titration during determination of the endpoint. The actual endpoint is that point at which the color in the two layers is equal. However, this point is not as discernible as the point taken in this method where there is a definite difference between the two layers.

Determination of Neutral Oil

REAGENTS REQUIRED: Petroleum ether (distillation range 30 to 60°C.); or N-pentane (distillation range 33-41°C.); neutral ethyl alcohol (95 per cent): freshly boiled ethyl alcohol, 95 per cent or higher and neutral to phenolphthalein indicator, either Formula No. 3A or No. 30 of the U. S. Bureau of Internal Revenue; and acetone, C.P.

PROCEDURE:

1. Accurately weigh a sample equivalent to 3-5 grams of Active Ingredient and transfer to a 250 ml Extraction cylinder. Add 50 ml of neutral alcohol and 50 ml of distilled water. Shake to disperse.
2. Add 50 ml of petroleum ether (or normal pentane), stopper the cylinder and shake up and down vigorously for one minute. Remove the stopper and wash it and the internal walls of the cylinder with a small volume of petroleum ether. Allow to stand until the emulsion breaks and both layers are perfectly clear.
3. Siphon off the ether layer into a dry, tared 250 ml wide mouth Erlenmeyer flask. Care should be taken not to siphon off any of the bottom alcohol-water layer with the ether extract. The end of the siphon tube should be near the top of the ether layer at the start of the siphoning operation and away from the cylinder wall. During the siphoning the tube is pushed down gradually as far as possible without contamination to within ⅛ to ¼ inch of the boundary between the ether and water layers. If the operation of si-

phoning off the ether extract is carefully carried out, no water will be siphoned off with the ether layer. After the siphoning step, slide the siphon up and away from the liquid in the cylinder. Gently blow the ether remaining in the siphon over into the Erlenmeyer flask. Rinse the exit end of the siphon with a small volume of ether.

4. Remove the ether by distillation in a controlled temperature water bath held at 60-70°C. See note (a).
5. Repeat steps (2) to (4) four additional times, making a total of five extractions. See notes (b) and (c).
6. Evaporate as much as possible of the petroleum ether from the combined extracts on the water bath. See note (d).
7. Place the flask on a sheet of asbestos (⅛ inch thick) on a boiling water bath and remove the last traces of ether with the aid of a stream of clean, dry air. Do not leave on the water bath longer than absolutely necessary to volatilize the petroleum ether. This should take no more than five minutes. See note (e).
8. Add 2 ml of acetone and repeat step (7). Wipe the flask with a clean cloth, cool in a desiccator and weigh.

CALCULATION:

$$\frac{\text{Weight of Residue (Step 8) x 100}}{\text{Weight of Sample (Step 1)}} = \%\ \text{Unsulfonated Material (Neutral Oil)}$$

PRECISION: Based on experimental results, the intra laboratory precision of this method is statistically estimated (95 per cent limits) to be ± 0.03 per cent. For simultaneous duplicate determinations by one analyst, the estimated precision is ± 0.01 per cent.

NOTES:

a. The use of a regulated, steam heated water bath is recommended. An electrically heated sand bath may be used in place of the water bath provided certain safety measures are carried out. The switch control should be some distance away from the hot plate and place of work. A sand bath of such size as to fit on top of the hot plate should be provided. The temperature of the sand bath should be automatically maintained between 60° and 70°C. by a regulator of the Foxboro type.
b. The same siphon must be used throughout the determination.
c. The ether should be evaporated to a small volume after each extraction, permitting the total volume of ether from the next extraction to be held conveniently in the 250 ml flask. Do not attempt to evaporate more than 125 ml of ether at one time as losses due to foaming may occur.
d. Remove the flask from the water bath when the ether no longer distills from the flask.
e. If the operation in step (7) requires more than five minutes, either too great a volume of ether remained in the flask in step (6) or the stream of air is of insufficient volume or both conditions are abnormal. Take the proper steps to correct either or both sources of error.

Determination of Water

APPARATUS REQUIRED: Automatic buret (Machlett type), 50 ml capacity, 1000 ml reservoir of amber glass, with a straight tip, obtainable from Precision Scientific Co., 3737 Cortland St., Chicago 47. In lieu of the described and recommended buret there are any number of practical arrangements of titration apparatus. Further information concerning them can be found in the literature (5). The reagent should be protected from moisture in the air by means of a suitable drying agent such as "Drierite" (a special indicating type anhydrous calcium sulfate obtainable from W. A. Hammond Co., Yellow Springs, Ohio). Calcium chloride also is satisfactory. The use of magnesium perchlorate (dehydrite) is expressly excluded due to the possible danger of explosion in contact with organic vapors.

REAGENTS REQUIRED: Karl Fischer reagent. Purchase as separate stable solutions of iodine in methanol and sulfur dioxide in pyridine with directions for mixing prior to use. These solutions are obtainable from Fischer Scientific Co. or other laboratory supply houses.

Methyl alcohol, anhydrous. The water tolerance by weight per cent is 0.1. In every case a blank must be run to establish the water content.

Sodium tartrate dihydrate ($Na_2C_4H_4O_6 \cdot 2H_2O$), reagent grade. The water content of this salt should be 15.66 ± 0.05 per cent. This value can be checked by heating a sample at 150°C. for 3 hours.

PROCEDURE:

1. Accurately weigh (to the nearest 0.1 milligram) a portion of the sample, containing from 50 to 200 milligrams of water, into a *dry*, 125 ml Erlenmeyer flask and stopper immediately.
2. Add 50 ml of methanol and immediately cover the flask aperture with a rubber dam (Davol "Sani-Tab" caps are suitable). Allow to stand for a few minutes with occasional swirling.
3. Pierce the rubber dam, insert the tip of the buret and titrate with Karl Fisher reagent. Approach of the endpoint is shown by a decrease in speed of discharge of the brown color of the reagent and a slight change in color of the sample from yellow to reddish yellow. Continue to titrate in 0.1 to 0.2 ml increments until the red-brown color of iodine persist.
4. Run a blank determination on 50 ml of methanol as described in steps (2) and (3) omitting the addition of the sample.
5. Repeat steps (1) to (3) employing 0.3 to 0.7 grams of sodium tartrate dihydrate in place of the sample.

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Surfactants Listed . . .

Fourth revision of synthetic detergents and emulsifiers

Part II

By John W. McCutcheon

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Betramine	Alframine Corp.	Sulfated alkylol amide	Detergent	Powder	25%	Anionic	Textiles, general cleanser
Bionol A-50	Antara Chemicals, division, General Aniline & Film Corp.	Alkyl dimethyl benzyl ammonium chloride	Germicide	Liquid	50%	Cationic	A bactericidal and germicidal agent. Activity unaffected by inorganic salts
Biopal VRO-20	Antara Chemicals, division, General Aniline & Film Corp.	Iodine — nonyl phenoxy polyoxethylene ethanol complex	Detergent Sanitizer Sterilizer Germicide	Liquid		Nonionic	Iodine — surfactant complex combining biocidal and detergent properties; used to compound detergent-sanitizers, sterilizing agents; germicidal rinses and cleaners; 20% available iodine
Biz (retail)	Procter & Gamble Co.	Built compound	Detergent			Anionic	Heavy duty, liquid, foaming detergent
Blancol	Antara Chemicals, division, General Aniline & Film Corp.	Naphthalene sulfonic acid condensate	Dispersant	Granular	95%	Anionic	Peptizing agent in insecticide formulations; solubilizer for pigments or filler in latex emulsions
Blancol N	Antara Chemicals, division, General Aniline & Film Corp.	Naphthalene sulfonic acid condensate	Dispersant	Powder	95%	Anionic	Multiple uses in paper industry; "Blancol N" differs only in physical form, being a powder
Blendene	Glyco Products Co.	Terpene fatty acid salt complex	Emulsifier Dispersant	Liquid	100%	Anionic	Nontoxic; oil in water emulsifier for oils and solvents
Blue Dot Duz	Procter & Gamble Co.	Built alkyl aryl sodium sulfonate	Detergent	Bead		Anionic	Built, all-purpose, household detergent
Boss 444 470	Bryton Chemical Co.	Sodium salt of petroleum sulfonates from synthetic hydrocarbons	Emulsifier	Liquid	35% 70%	Anionic	For use in leather oils (444) and in fat splitting (470).
Bozetol	Hart Products Corp.	Sulfated ester	Wetting	Liquid		Nonionic	Non-sudsing textile wetting out agent
Breeze (retail)	Lever Brothers Co.	A sodium alkyl aryl sulfonate plus builders	Detergent	Powder		Anionic	All purpose heavy-duty detergent
Bretol	Fine Organics, Inc.	Cetyl dimethyl ethyl ammonium bromide	Germicide	Solid	100%	Cationic	A sanitizer; see also "Ethyl Cetab"
Brij-30	Atlas Powder Co.	Polyoxyethylene lauryl ether	Emulsifier Wetting	Liquid	100%	Nonionic	Highly resistant to alkaline conditions
Brij-35	Atlas Powder Co.	Polyoxyethylene lauryl ether	Emulsifier Wetting	Solid	100%	Nonionic	Highly resistant to alkaline conditions
Bromat	Fine Organics, Inc.	Cetyl trimethyl ammonium bromide	Germicide	Powder	100%	Cationic	A sanitizing agent
Bryton DHG, 430, MM, 450, S50, etc.	Bryton Chemical Co.	Petroleum sulfonates from synthesized hydrocarbons	Emulsifier	Liquid-Paste		Anionic	A group of petroleum sulfonate products for general emulsifiers for textiles, dry cleaning, rust preventives, lubricating oil additives, etc.
BTC- 50 100 471 824 927	Onyx Oil & Chemical Co.	Alkyl dimethylbenzyl ammonium chloride	Germicide	Liquid	50%	Cationic	"BTC-50" is 50% aqueous solution. Phenol coefficient on S. A. not less than 200; product manufactured for use in detergent sanitizers. "BTC-100" is 100% Concentrated. "BTC-471" and "927" are 50% active solutions; very similar to "BTC-50"
Bub-L	Whitfield Chemical Co.	A built alkyl aryl sodium sulfonate	Detergent Wetting Penetrant	Liquid	35%	Anionic	A cleaning agent for the removal of grease, oil, residues of grime, etc., from fabrics, painted or enameled surfaces, glass, lincleum, rubber and a variety of metals
Burdye NF	Arkansas Co.	Polyoxyethylene compound	Detergent Leveling	Liquid	40%	Nonionic	Textile applications
Burkem 288	Burkart-Schier Chemical Co.	Sulfated fatty ester	Wetting Dispersing Softening	Liquid	65%	Anionic	Dyeing of finishing textiles
Burkester	Burkart-Schier Chemical Co.	Polyethylene glycol fatty ester	Emulsifier	Liquid	100%	Nonionic	Use: textiles
Calpex	Apex Chemical Co.	Sulfated ester	Wetting Emulsifier	Liquid	25%	Anionic	A textile yarn lubricant
Calsolene Oil HSA	Arnold, Hoffman & Co.	Sulfated fatty acid ester	Wetting Dispersant	Liquid	46%	Anionic	Stable in acids, alkalies and inorganic salts
Carbanone A	Hart Products Corp.	Carboxylated polyethoxy derivative	Detergent Dispersant	Gel	65%	Anionic	Stable to acid and alkaline solutions
Carbo Moytol	Standard Chemical Products	Alkyl aryl sulfonic acid	Wetting	Liquid		Anionic	This is the free acid of "Moytol" which see; used in textile carbonizing operations
Carbonox	Baroid Division National Lead Co.	Decomposed lignite	Emulsifier	Powder	100%	Anionic	Emulsifier and thinner for oil well drilling mud

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Carbopol 934	B. F. Goodrich Chemical Co.		Emulsifier	Powder		Anionic	An oil emulsifier and emulsion stabilizer
Cardene	Carlisle Chemical Works, Inc.	A fatty alkanolamide	Emulsifier	Liquid	100%	Nonionic	An emulsifier for liquid shampoos, textile processing
Cascade (retail)	Procter & Gamble Co.	Compound containing soap and detergent	Detergent	Powder		Anionic	A green, pine scented, dishwashing powder
Cationic SP	American Cyanamid Co.	Stearamido isopropyl dimethyl-B-hydroxy ethyl ammonium phosphate	Dispersant Wetting	Liquid	50%	Cationic	A pigment dispersant for clays, mold lubricants; Also a rewetting agent for textiles and paper
Catylex	Hart Products Corp.	A salt of a tertiary amine	Emulsifier	Paste		Cationic	An acid scouring and wetting agent
Catylon C D	Hart Products Corp.	A salt of a tertiary amine	Emulsifier Bactericide	Liquid		Cationic	An acid scouring and wetting out agent
Celopon	Arkansas Co.	Sodium oleyl methyltaurate	Detergent Wetting	Gel	10%	Anionic	A textile scouring aid; highly acid and alkali resistant
Ceramol	Aceto Chemical Co.	A partially sulfonated fatty alcohol from hydrogenated vegetable oil	Emulsifier		Wax		An emulsifier designed for use in the cosmetic field for vanishing creams, lipsticks, ointment bases, sun-screen creams, etc.
Ceranine HC	Sandoz Chemical Works, Inc.	A fatty amide derivative	Softener	Paste		Cationic	Antistatic and softening agent for synthetic fibers
Cerasynt S SA SE SN M MN DM	Van Dyk & Co.	Glycerol and glycol stearate	Emulsifier	Solid	100%	Nonionic	Emulsifiers for cosmetic and pharmaceutical use; "S," "SA" are glycerol monosterates; "SE, SN, M" and "MN" are ethylene glycol monostearates; "DM" is diethylene glycol monostearate
Cerasynt IP	Van Dyk & Co.	Glycol amido stearate	Emulsifier	Flake	100%	Nonionic	A water dispersible oil soluble emulsifier for cosmetic use
Cerfak	E. F. Houghton & Co.	Sodium alkyl aryl sulfonate	Detergent Wetting	Flake	40%	Anionic	Used over full pH range for detergency and/or wetting; also for compounding cleaning agents
Cerfak Liquid	E. F. Houghton & Co.	Alkyl aryl sulfonate	Detergent Wetting	Liquid	25%	Anionic	Detergent for general cleaning of metals after heat treatment; also used as an all around industrial cleaner
Cerfak 453	E. F. Houghton & Co.	Blend of anionic and nonionic agents	Wetting Rewetting	Liquid	25%	Anionic	Used in textile field for wetting and rewetting; effective over wide pH range
Cerfak 455	E. F. Houghton & Co.	Blend of alkyl aryl sulfonate and nonionic	Detergent Wetting	Liquid	25%	Anionic	Used in textile and paper field for wetting and rewetting, effective over a wide pH range
Cerfak 1300 1301 1305	E. F. Houghton & Co.	Alkyl polyoxyethylene thioether	Detergent Wetting	Liquid	85%	Nonionic	Water soluble in all proportions; insoluble in kerosene or mineral oil; use: textiles, all operations; "Cerfak 1305" is a 65% active concentration of "Cerfak 1300." "Cerfak 1301" is modified "Cerfak 1300," having less wetting power but higher (99%) concentration of active
Cerfak 1400 1405	E. F. Houghton & Co.	Alkyl polyoxyethylene ether	Detergent Wetting	Liquid	85%	Nonionic	Soluble in water and in Stoddard Solvent in all proportions; used for all wet processing operations of textiles. "Cerfak 1405" is a 65% active concentration of "Cerfak 1400"
Cerfak 1422	E. F. Houghton & Co.	A polyether alcohol	Detergent Wetting	Liquid	85%	Nonionic	Suggested for scouring greasy wool in neutral solution; Effective also in all other wet processing operations
Cerfak N-100	E. F. Houghton & Co.	Polyethanolamine condensate of a fatty acid	Detergent Wetting	Liquid	100%	Nonionic	Stable to acids and alkalies and to hard water; used in textile scouring and dyeing, particularly in alkaline scouring
Cetol	Fine Organics, Inc.	Cetyl dimethyl benzyl ammonium chloride	Germicide	Solid	100%	Cationic	Phenol coefficient at 20°C. on S.A. 400; Supplied in technical and recrystallized grades
Cetopyr C Gel C Pdr. B	Aceto Chemical Co.	Cetyl pyridinium chloride	Germicide	Gel Powder	80% 98% 80%	Cationic	A general type germicide for sanitizers, etc.; "Cetopyr B" is a cetyl pyridinium bromide

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Cetyl Pyridinium Bromide and Chloride	Fine Organics, Inc.	As in name	Germicide	Solid	100%	Cationic	Surface-active agent and effective antiseptic
Charlab Condensate	Charlotte Chemical Laboratories		Wetting				Textiles
Cheelox B-13	Antara Chemicals, division, General Aniline & Film Corp.	Mixture of soluble salts of aminocarboxylic acids	Sequestrant Dispersant	Liquid	38%	Anionic	An organic sequestering agent for calcium and magnesium; especially effective for sequestering iron in alkaline solutions containing other heavy metallic ions; uses: sequestering for kier boiling, peroxides, bleach baths, liquid soaps, and soaker alkali formulations
Cheer (retail)	Procter & Gamble Co.	A built alkyl aryl sodium sulfonate	Detergent	Bead		Anionic	A built, all-purpose detergent
Chel 185	Geigy Chemical Corp.	Sodium dihydroxyethyl glycinate	Sequestrant	Liquid	45%	Anionic	A general complexing agent
Chel 242 242L 242P	Geigy Chemical Corp.	An ethylene diamine salt	Sequestrant Dispersant	Solid	100%	Anionic	Designed to sequester iron salts under highly alkaline conditions
Chel 330	Geigy Chemical Corp.	Pentasodium diethylene triamine pentaacetate	Sequestrant	Liquid	34%	Anionic	A complex agent for iron salts in acid and neutral pH range; Good bleach stability
Chel DM-41	Geigy Chemical Corp.	Trisodium hydroxyethyl ethylene-diamine triacetate	Sequestrant	Liquid	41%	Anionic	A complexing agent in mildly alkaline solutions
Chemoil 412	Standard Chemical Co.	A sulfonated castor oil	Emulsifier	Liquid	50%	Anionic	A textile lubricant, and dye assistant
Chemsol 935-N	Synthron, Inc.	An organic polyphosphate	Dispersant Wetting	Paste	68%	Nonionic	A textile dye dispersant
Chiffon Liquid (retail)	Armour & Co.	A formulated product	Detergent	Liquid			A detergent for dishes and fine fabrics
Chlorsol	E. F. Drew & Co.	Polyoxyalkylene ester	Emulsifier	Liquid		Nonionic	A chlordane emulsifier; see also "Emcol H-83T" for same purpose
Cindet	C. B. Dolge Co.	Compounded product	Detergent	Liquid			A heavy duty industrial liquid cleaner for floors, tile, walls, etc.
Clavanol Conc.	Dexter Chemical Co.	A high molecular weight polyethylene glycol condensation product	Detergent Emulsifier	Liquid	100%	Nonionic	A textile dye assistant for general use; also for use in washing, desizing and scouring operation
Clavolene Conc.	Dexter Chemical Co.	A high molecular weight amide condensation product	Detergent Wetting	Liquid	100%	Nonionic	Stable to mild acid and alkali concentrations; useful in textile dye leveling, scouring, and wetting out operations; particularly useful in removing spinning oils and waxes
Clearate Special Extra	W. A. Cleary Corp. (Sales agents, Naftone, Inc.)	Soya lecithin	Dispersant Wetting	Liquid		Nonionic	Dispersant in inks, paints, foods, etc.
Clearate WD LV	W. A. Cleary Corp. (Sales agents, Naftone, Inc.)	Soya lecithin derivatives	Dispersant Wetting	Liquid	56%	Nonionic	"Clearate WD" is primarily for use as a pigment dispersant and anti-flocculant in water-base paint systems, etc.
Colesco	Cowles Chemical Co.		Detergent				Low foaming all purpose detergent for both hot and cold water washing
Comperlan KM	Fallek Products Co.	Fatty acid ethanolamide	Foam Stabilizer	Paste	30%	Nonionic	Shampoos and bubble bath, thickener and foam stabilizer
Composition #65	Oakite Products, Inc.	A compounded product containing anionic surfactants	Detergent	Powder		Anionic	A product designed for hand cleaning in the dairy industry; It does not contain a bactericide
Compound 132D	Onyx Oil & Chemical Co.	Sodium decyl sulfate	Wetting	Paste	48%	Anionic	For use in fire extinguishers
Conco AAS-35	Continental Chemical Co.	Sodium alkyl aryl sulfonate	Detergent	Paste	31%	Anionic	Detergent base, textile
Conco AAS-40-M	Continental Chemical Co.	Sodium alkyl aryl sulfonate	Detergent	Liquid	40%	Anionic	Household detergents, consumer cleaning formulations
Conco AAS-50-M	Continental Chemical Co.	Ammonium alkyl aryl sulfonate	Detergent	Liquid	50%	Anionic	Household detergents, consumer cleaning formulations
Conco AAS-60	Continental Chemical Co.	Triethanolamine alkyl aryl sulfonate	Detergent	Liquid	60%	Anionic	Bubble baths, shampoos, liquid dishwashing

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Conco Sulfate EP	Continental Chemical Co.	Diethanolamine lauryl sulfate	Detergent Emulsifier	Liquid	36%	Anionic	Shampoo base, bubble baths
Conco Sulfate TL	Continental Chemical Co.	Triethanolamine lauryl sulfate	Detergent Emulsifier	Liquid	41%	Anionic	Shampoos, cosmetics
Conco Sulfate WA	Continental Chemical Co.	Sodium lauryl sulfate	Detergent Emulsifier	Paste	30%	Anionic	Textile processing, cosmetics
Conco VAC	Continental Chemical Co.	Blend of solvents and detergents	Detergent Emulsifier	Liquid	100%	Anionic	All purpose cleaner
Concogel T	Continental Chemical Co.	Sodium methyl taurate	Detergent	Liquid		Anionic	Textile scouring agent
Concogel 2 Conc.	Continental Chemical Co.	Methyl taurine derivative	Detergent	Liquid	31%	Anionic	Textile scouring agent
Condensate C	Continental Chemical Co.	Fatty acid amine condensate	Emulsifier Detergent Penetrant Wetting	Liquid	100%	Nonionic	Textile processing emulsifier
Condensate M	Continental Chemical Co.	Myristic diethanolamide	Detergent	Liquid	100%	Nonionic	Cosmetic formulations
Condensate PA	Continental Chemical Co.	Coconut acid diethanolamide	Detergent	Liquid	100%	Nonionic	Shampoos, household detergents
Condensate PE	Continental Chemical Co.	Lauric diethanolamide	Detergent	Wax	100%	Nonionic	Foam stabilizer
Condensate PEM	Continental Chemical Co.	Lauric-myristic diethanolamide	Detergent	Wax	100%	Nonionic	Shampoos
Condensate PL	Continental Chemical Co.	Lauric diethanolamide	Detergent	Wax	100%	Nonionic	Household detergents
Condensate PO	Continental Chemical Co.	Coconut oil diethanolamide	Detergent	Liquid	100%	Nonionic	Shampoos
Conoco C-50	Continental Oil Co.	Dodecyl benzene sodium sulfonate	Detergent	Slurry	45%	Anionic	Basic material requiring further processing
SD-40			Detergent	Bead	40%	Anionic	Light-duty cleaner
DD-40			Detergent	Flakes	40%	Anionic	Light-duty cleaner
Conoco Sulfonic Acid 400	Continental Oil Co.	Dodecylbenzene sulfonic acid	Detergent Base	Liquid	88% 98%	Anionic	This is sulfonated "Neolene 400" useful as a detergent base material. Available in 88% active form and as a low salt 95/98% active form particularly suitable for the production of liquid synthetic detergents
Cordon #810 700/75 PE870 NB870 and LB870 890 900	Finetex, Inc.	Sulfonated oils and acids	Emulsifier	Liquid		Anionic	A series of compounds for use in textile lubrication, leather finishing and paper coating; "#810" is derived from red oil, "700/75" from olive oil, "870" from tall oil, "890" from castor oil and "900" from sperm oil
Corduet	American Aniline & Extract Co.		Wetting Detergent	Liquid	30%	Nonionic	Textile scouring agent
Cream Suds Granules	Procter & Gamble Co.	Essentially sodium alkyl aryl sulfonate	Detergent	Granules		Anionic	Built detergent and cleaner for institutional maintenance
CTA Stearate	Fine Organics, Inc.	Cetyl trimethyl ammonium stearate	Germicide	Solid	100%	Cationic	A poultry feed ingredient
Dacron Scour 6000	Utility Chemical Co.	A compounded product	Detergent	Powder		Nonionic	A built detergent designed exclusively for scouring of "Dacron" fabrics
Darvan No. 1	R. T. Vanderbilt Co. (Mfg. by Dewey & Almy Chemical Co.)	Sodium salt of polymerized alkyl aryl sulfonic acid (alkyl, short chain) (probably a formaldehyde condensation product)	Dispersant	Powder	100%	Anionic	Soluble in water up to 40%; pH of one percent solution, 7-9.5; uses: dispersant for latex, carbon black, whiting, clay, etc.; compare also with "Daxad No. 11"
Darvan No. 2	R. T. Vanderbilt Co. (Mfg. by Dewey & Almy Chemical Co.)	Sodium salt of polymerized alkyl aryl sulfonic acid (alkyl-long chain)	Dispersant	Powder	100%	Anionic	Maximum water solubility — 25%; an emulsion stabilizer; dispersant for latex, paper, leather; particularly for zinc oxide, titanium dioxide, sulfur, etc.
Darvan No. 7	R. T. Vanderbilt Co. (Mfg. by Dewey & Almy Chemical Co.)	Sodium salt of carboxylated polyelectrolyte	Dispersant	Liquid	25%	Anionic	A dispersant for dyes and pigments

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Dash (retail)	Procter & Gamble Co.		Detergent	Granules		Anionic	A built all-purpose low sudsing detergent
Daxad No. 11	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Polymerized sodium salts of alkyl naphthalene sulfonic acid (alkyl, short chain)	Dispersant	Powder	77%	Anionic	Maximum solubility in water is 40%. Oil-in-water emulsifier; dispersing agent for latex, paper, leather, etc.; compare also with "Darvan No. 1"
Daxad 11KLS	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Polymerized potassium salts of alkyl naphthalene sulfonic acids	Dispersant	Solid	77%	Anionic	Recommended for the same general uses as "Daxad 11," except where low sodium content is most desirable. "LS" stands for low sulfate content
Daxad 11SPN	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Sodium salts of polymerized alkyl naphthalene sulfonic acids	Dispersant	Powder	77%	Anionic	Recommended for the same general uses as "Daxad 11" in systems where color is not the primary consideration
Daxad 15	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Polymerized sodium salts of alkyl naphthalene sulfonic acid (alkyl, short chain)	Dispersant	Powder	85%	Anionic	A light colored dispersing agent having a low salt (electrolyte) content
Daxad No. 21	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Mono calcium salt of a polymerized alkyl aryl sulfonic acid (alkyl-long chain)	Dispersant	Powder	92%	Anionic	Water solubility approximately 25% at 72°F.; insoluble in mineral oils, alcohol, kerosene, etc.; dispersant for solids in water, as calcium salts in manufacture of wallboard, etc.
Daxad No. 23	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Sodium salts of polymerized substituted benzoid alkyl sulfonic acid (alkyl-long chain)	Dispersant	Powder	85%	Anionic	Water soluble; an emulsion stabilizer against acids, alkalis, and temperature change; dispersant for paper, textile and mining industry; compare also with "Darvan No. 2"
Daxad No. 27	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Sodium salt of a substituted benzoid alkyl sulfonic acid combined with an inert inorganic suspending agent	Dispersant	Powder	85%	Anionic	Uses: dispersant and emulsifier for agricultural sprays
Daxad No. 30	Dewey & Almy Chemical Co. (Div. of W. R. Grace & Co.)	Sodium salt of a polyelectrolyte	Dispersant	Liquid	25%	Anionic	A new dispersant which is particularly effective for dispersing pigments in aqueous solutions, is clear to slightly opalescent, light stable, a low viscosity product, and shows little tendency to foam
Decersol OT	American Cyanamid Co.	Dioctyl ester of sodium sulfo succinic acid	Wetting	Liquid	25%	Anionic	Name used in textile trade for "Aerosol"; see "Aerosol OT"
Defoamer 23	Baroid Division National Lead Co.	Substituted aromatic sulfonic acid	Defoamer	Powder	100%	Anionic	Defoam oil well drilling mud
Dehydag Sulfate Extract A	Fallek Products Co.	Lauryl alcohol ammonium sulfate		Liquid	33-35%	Anionic	Shampoo base
Dehydag Sulfate Extract N 40	Fallek Products Co.	Fatty alcohol sulfate	Detergent	Liquid	28%	Anionic	Liquid shampoos
Dehydag Sulfate Extract Special	Fallek Products Co.	Lauryl alcohol ammonium sulfate	Detergent	Liquid	46-48%	Anionic	Liquid shampoos, and bubble bath
Dehydag Sulfate Extract T	Fallek Products Co.	Lauryl alcohol triethanolamine sulfate	Detergent	Liquid	50-55%	Anionic	Liquid shampoos, and bubble bath
Dehydag Sulfate CS	Fallek Products Co.	Sodium lauryl sulfate	Detergent	Paste	60%	Anionic	Cream shampoos
Dehydag Sulfate F	Fallek Products Co.	Fatty alcohol sodium sulfate with phosphates	Detergent	Powder	45%	Anionic	Basic material for fine washing (rinsing) preparations
Dehydag Sulfate F 35	Fallek Products Co.	Compound of synthetic active substances	Detergent	Powder	35%	Anionic	Cosmetic preparations, tooth paste
Dehydag Sulfate K 12	Fallek Products Co.	Pure lauryl sodium sulfate	Detergent Wetting Dispersant	Powder	90%+	Anionic	
Dehydag Sulfate Oil P	Fallek Products Co.	Fatty alcohol sodium sulfate	Detergent	Liquid	28%	Anionic	For detergents, cleansing and rinsing agents, wetting agents
Dehydag Sulfate T Paste	Fallek Products Co.	Fatty alcohol triethanolamine sulfate	Detergent	Paste	80-82%	Anionic	Shampoos

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Dehydag Sulfate Z	Fallek Products Co.	Fatty alcohol sodium sulfate	Detergent Wetting Dispersant	Powder	58-62%	Anionic	Powder shampoos, bubble bath, toothpaste, insecticides, paint
Dehydag Sulfate Z High Concentrated Powder	Fallek Products Co.	Fatty alcohol sodium sulfate	Wetting	Powder	87%+	Anionic	Shampoos, toothpaste
Dehydag Sulfate Z High Concentrated Needles	Fallek Products Co.	Fatty alcohol sodium sulfate	Wetting	Needles	88%+	Anionic	Shampoos, toothpaste, pharmaceutical preparations
Dehydag Wax E	Fallek Products Co.	Sodium salts of higher saturated fatty alcohol sulfuric acid esters	Emulsifier	Powder	85%	Nonionic	Emulsions, (O/W type)
Dehydol 100	Fallek Products Co.	Fatty alcohol ethylene oxide	Detergent Wetting	Paste	100%	Nonionic	For insecticides, cleansing products; low foaming detergent
Depcogel	De Paul Chemical Co.	Oleyl methyl tauride	Detergent Wetting	Gel	15%	Anionic	Detergent and wetting agent in many industries, cotton, agriculture, cosmetic, leather
Depcogel 3X	De Paul Chemical Co.	Oleyl methyl tauride	Detergent Wetting	Liquid	33%	Anionic	Detergent and wetting agent in many industries, cotton, agriculture, cosmetic, leather
Depcomin	De Paul Chemical Co.	Blend of nonionic agents	Detergent	Liquid		Nonionic	Scouring synthetic materials; solvent cleaner
Depcopon NIA	De Paul Chemical Co.	Ethylene oxide condensate	Detergent Wetting	Gel	70%	Anionic	Industrial detergent, textile, paper, leather cleaning
Depcosol CAWA H L	De Paul Chemical Co.	Complex fatty polyamino condensates	Softener	Paste		Cationic	Textile softener
Dergon MF	Arkansas Co.	Polyoxyethylene fatty acid ester	Detergent	Liquid	80%	Nonionic	Textile scouring wool and synthetic fibers; low foaming type
Dergon OM	Arkansas Co.	Alkanolamine fatty acid condensate	Detergent Wetting	Liquid	95%	Nonionic	Textile, leather, scouring wool, synthetic fibers, shearlings
Dergopen PX	Arkansas Co.	Alkyl phenoxy polyether alcohol	Detergent Wetting	Liquid	40%	Nonionic	A textile surface active agent for many uses; particularly for rewetting
Deriphat 151	General Mills, Inc.	Sodium salt of N-coco beta amino propionate	Detergent	Solid	100%	Amphoteric	High foaming, substantive, surfactant, compatible with anionics, cationics, nonionics; Use: Shampoos, cosmetics, sanitizers, emulsifiers, corrosion inhibitors, general purpose surfactants
Deriphat 154	General Mills, Inc.	Disodium salt of N-tallow beta amino dipropionate	Detergent	Solid	100%	Amphoteric	High solubility in presence of alkalies and inorganic builders; Use: Hard surface cleaners, textiles
Deriphat 160	General Mills, Inc.	Disodium salt of N-lauryl beta amino dipropionate	Detergent	Solid	100%	Amphoteric	Similar to "Deriphat 151"
Deriphat 170	General Mills, Inc.	Sodium salt of N-lauryl beta amino propionate	Detergent	Solid	100%	Amphoteric	Similar to "Deriphat 151"
Deriphat 170B	General Mills, Inc.	Triethanolamine salt of N-lauryl beta amino propionate	Detergent	Liquid	50%	Amphoteric	Similar to "Deriphat 151"
Dermolate	White Laboratories, Inc.	High molecular weight saturated fatty acids, et. al.	Detergent	Solid		Anionic	A non-irritating hypo-allergenic lathering skin detergent in cake form
Desmer 0-112	Jacques Wolf & Co.	Soluble aerosol compounds	Wetting	Liquid	100%	Nonionic	Used as wetting agent in mercerizing liquids
Detanol A	Commonwealth Color & Chemical Co.	Sodium salt of an alkyl sulfonate	Detergent Wetting		18%	Anionic	Textile
Detergent A N	Pilot California Co.	Dodecybenzene sodium sulfonate	Detergent	Flake	40%	Anionic	A drum dried 40% active product for general detergent use; "Detergent A" is the same modified by the addition of isopropanol amide as a foam stabilizer

VOLUME II • NINETEEN HUNDRED AND FIFTY-SEVEN

the Pluronic® grid approach

cuts down research time in formulating and processing

Since Wyandotte published Volume I of the Pluronic Grid early in 1956, Pluronic block-polymers have made great strides, both as surfactants and as chemical intermediates. And especially gratifying has been the wide acceptance of the Pluronic Grid approach by research chemists, as a means of systematizing their research . . . helping to eliminate random evaluation of unrelated surface-active agents.

There are good reasons for this. The Pluronic Grid is not only practical, but easy to use. It simplifies formulation . . . suggests in advance the characteristics you can get using a Pluronic or a combination of Pluronics. More and more laboratories are finding that, by first using the Pluronic Grid approach, they can determine *with just one or two tests* whether or not the Pluronics are applicable. If they are, then a few additional tests will determine the Pluronic, or combination of Pluronics, with the best balance of properties to solve their problem.

In brief, the Pluronic Grid approach offers these advantages:

1. **Provides a controlled, systematic method of screening.**
2. **Minimizes costly random screening by establishing property trends.**
3. **Offers a simple method of determining the effects of changes in molecular weight and in hydrophobic-hydrophilic ratio.**
4. **Helps develop new products and processes, by the accumulation of information on related grades of Pluronics that would have been impossible with random screening of other surface-active agents.**
5. **Permits the chemist to find the Pluronic, or combination of Pluronics, with the best balance of properties for the solution of his problem, instead of trying to formulate to a surfactant's properties.**

When the Pluronic Grid was first conceived, it contained only six members. The number has since been increased to 21. Most of the additions were at the request of major laboratories . . . to help improve the Grid approach. These chemists found that a greater number of grades, with smaller incremental changes, permitted them to obtain a more exact balance of properties with less actual laboratory work. Special grades are constantly being evaluated in highly diversified fields. These new developments make it advantageous for you to keep abreast of the progress in Pluronics' development.

Systematic selection with the Pluronic Grid

Using the Grid, you can select the Pluronic with the exact hydrophobic-hydrophilic ratio and molecular weight to give you the best balance of properties to satisfy your use conditions.

Why the Pluronic series is different

Chemists know that polyoxy*ethylene* compounds are water soluble—no matter how high their molecular weight. For many years, it was generally assumed that polyoxy*propylene* compounds would also be water soluble. However, the fact is: at a molecular weight of about 800-900, polyoxypropylene glycols become essentially water insoluble.

Investigation at Wyandotte revealed that if water-soluble polyoxyethylene groups were added to both ends of the water-insoluble polyoxypropylene chain, a complete series of new block-polymers with highly desirable surface-active properties would develop.

These block-polymers are prepared by adding propylene oxide to the two hydroxyl groups of a propylene glycol nucleus. The resulting hydrophobic base can be made to any controlled length, varying from 800 to many thousands in molecular weight.

By adding ethylene oxide to both ends of this hydrophobic base, it is possible to put polyoxyethylene hydrophilic groups on the ends of the molecule. These hydrophilic groups are controlled in length to constitute anywhere from 10% to 90% of the final molecule. The simplified structure can be represented as:

$$HO\,(CH_2\text{-}CH_2\text{-}O)_a\,\underset{\displaystyle CH_3}{(CH\text{-}CH_2\text{-}O)_b}\,(CH_2\text{-}CH_2\text{-}O)_c\,H$$

Other products on the market can usually vary only the hydrophile. The Pluronics are unique in that the size of *both* the hydrophobe and the hydrophile are variable, offering an additional dimension of freedom. This produces a wider range of properties, which vary in smaller, more controllable increments.

The Pluronics are the only block-polymer surfactants commercially available. They range in physical form from mobile liquids to solids sufficiently hard to be flaked. They are 100% active in all forms, and exhibit a wide variety of surface-active properties. They range in molecular weight from 1000 to over 11,000. They vary from materials that are almost water insoluble to materials that have no cloud point—even at the boiling point of water.

What is the Pluronic Grid?

The Pluronic Grid is a graphic presentation of this broad series, formed by plotting molecular-weight ranges of the hydrophobe against the percent of the hydrophile in the final molecule.

Pluronic nomenclature

To simplify the naming of the Pluronics, they are identified by a letter (L, P, or F) and a two-digit number. The letter identifies the physical form of the particular Pluronic: L for liquid, P for paste, F for flake. The first digit identifies the typical molecular weight of the hydrophobic base, as indicated by the column to the left of the Grid. The second digit suggests the approximate percent of ethylene oxide in the total molecule.

Thus, Pluronic F68 is a flake with a hydrophobic-base molecular weight of approximately 1750; 80% of the molecule, by weight, consists of hydrophilic polyoxyethylene groups, and the remaining 20% is hydrophobic polyoxypropylene groups.

Total molecular weights of the Pluronic grades can be easily computed. For example:

$$\text{Molecular weight of F68} = \frac{1750}{.20} = 8750$$

1750 is the typical molecular weight of the polyoxypropylene base for those Pluronic grades whose first digit is 6. And .20 means that 20% of the molecule, by weight, is polyoxypropylene.

How to use the Pluronic Grid

Because of the wide range of molecular weight obtainable in the Pluronic series—and because of the two degrees of freedom (controlling the molecular weights of both the hydrophobe and the hydrophile)—properties of the Pluronic grades can be plotted as trends across the Grid.

By observing these trends, the formulator can select—from the Grid—those Pluronic grades having the best balance of properties for his particular application. After only a few laboratory tests, he can narrow this area down to the best Pluronic or combination of Pluronics for his formulation.

Known trends for several general properties of the Pluronic series are shown; other specific trends can be determined easily by evaluating a few Pluronic grades from various positions on the Grid. In this way, it is possible for anyone to plot their own trends . . . individual trends directly pertaining to their own operations, conditions, or problems.

Example I:

Formulating a machine-dishwashing compound

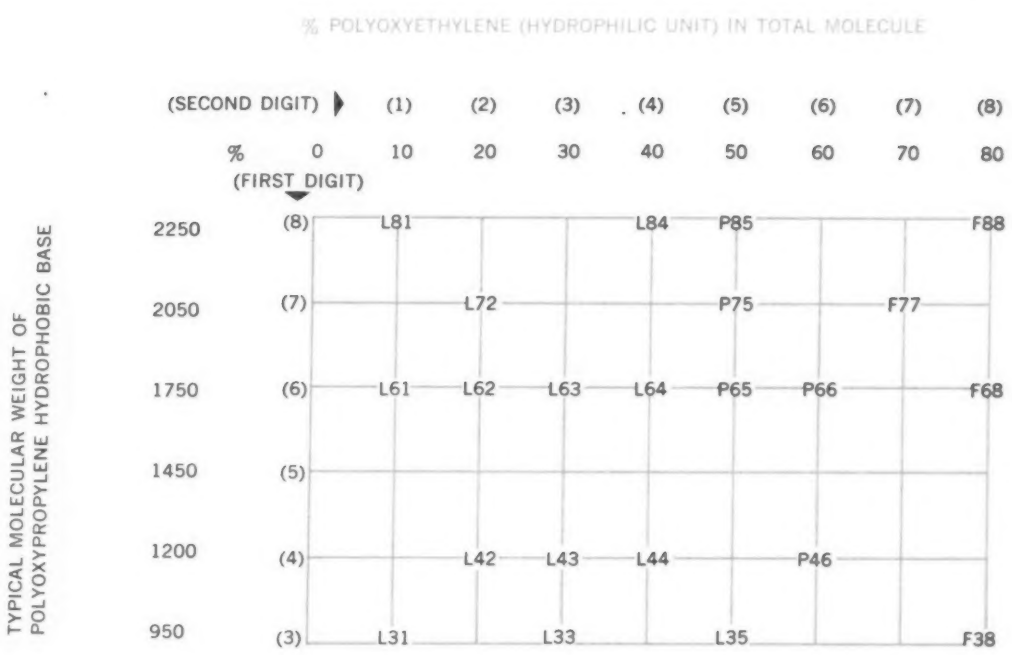
The surface-active agent used in a machine-dishwashing compound should have the following properties: good rinsing; very low foam; good wetting; good detergency; good lime-soap-dispersing ability; good dedusting properties; extremely low toxicity.

Rather than initiate a random evaluation of all the unrelated surface-active agents now commercially available, the formulator can save research time—and direct his efforts in an organized approach to the problem of selecting a suitable surfactant—by referring to the Pluronic Grid.

Very low foam is extremely important in a machine-dishwashing compound. And it can be seen that the lowest foaming Pluronic polymers are in the lower left quadrant of the Grid. The property trends also indicate that the best wetting and penetrating action is in the lower left quadrant . . . this area also has excellent rinsing.

The area of best detergency is in the central portion of the Grid. The best lime-soap-dispersing properties are found in the upper right quadrant. The cloud point and solubility of the Pluronics increase in moving toward the right side of the Grid . . . the formulator may choose a Pluronic having any degree of solubility desired. (*Continued on back page.*)

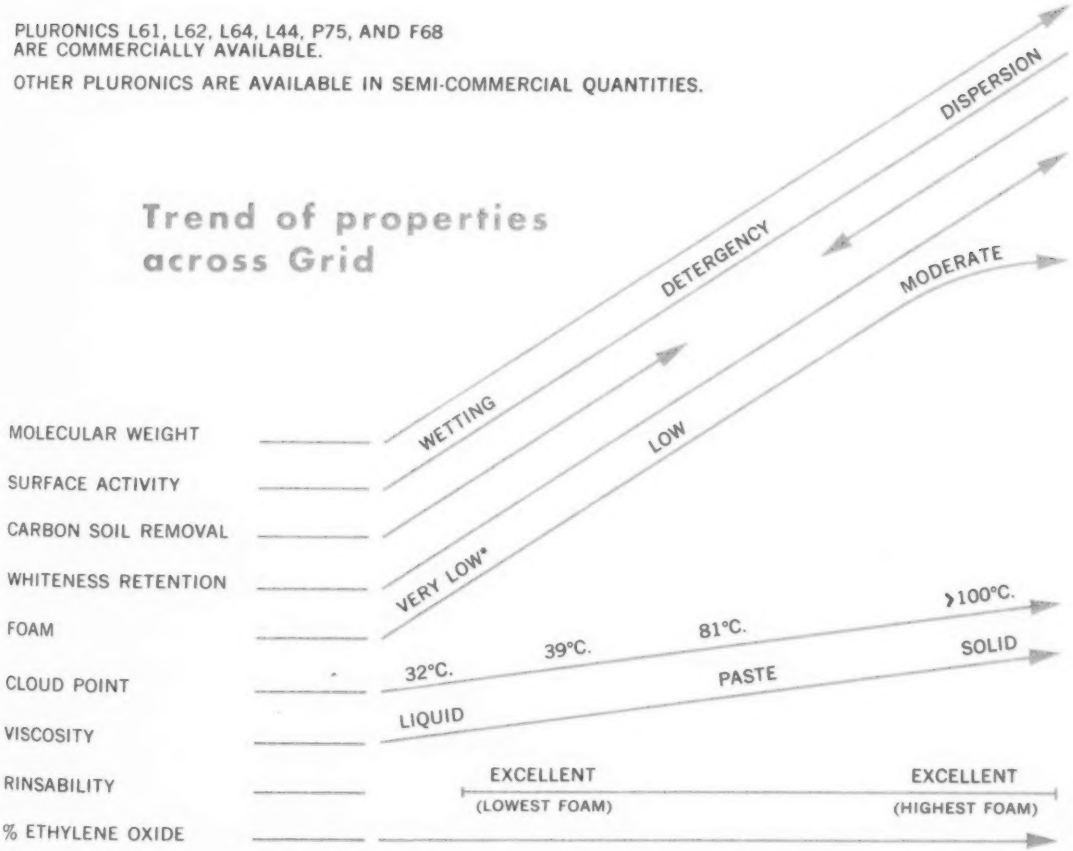
Pluronic Grid


% POLYOXYETHYLENE (HYDROPHILIC UNIT) IN TOTAL MOLECULE
(SECOND DIGIT) (1) (2) (3) (4) (5) (6) (7) (8)
% 0 10 20 30 40 50 60 70 80
(FIRST DIGIT)
TYPICAL MOLECULAR WEIGHT OF POLYOXYPROPYLENE HYDROPHOBIC BASE
2250 (8) L81 L84 P85 F88
2050 (7) L72 P75 F77
1750 (6) L61 L62 L63 L64 P65 P66 F68
1450 (5)
1200 (4) L42 L43 L44 P46
950 (3) L31 L33 L35 F38

PLURONICS L61, L62, L64, L44, P75, AND F68 ARE COMMERCIALLY AVAILABLE.

OTHER PLURONICS ARE AVAILABLE IN SEMI-COMMERCIAL QUANTITIES.

Trend of properties across Grid



EMULSIFICATION— ALL PLURONICS HAVE FOUND APPLICATIONS AS EMULSIFYING AGENTS.

*ABOUT 10% PLURONIC L61 (BASED ON THE TOTAL WEIGHT OF PLURONIC) EFFECTIVELY REDUCES THE FOAMING OF THE OTHER PLURONICS.

Since rinsing, foaming, and wetting are the most important properties, the formulator should evaluate Pluronic grades L62, L63, L42, and L43 in his particular formulation.* This systematic approach to the problem can eliminate much fruitless work in unprofitable areas.

The same principles have been applied to developing a suitable rinse aid in mechanical dishwashing, where a small amount of surfactant is injected into the last rinse to improve and minimize water spotting and streaking — particularly on glasses, silverware, and plastics. In this application, very low foam, good rinsing, good wetting action, and low toxicity are of primary importance, and this again suggests the area of L62, L63, L42, and L43.

An added advantage of all the Pluronics, not indicated by the Grid, is their extremely low toxicity . . . and liquid grades give permanent dedusting.

It should be noted that L61, L31, and L81 were not considered in this application because of their very low cloud point. However, added in small quantities to any of the other Pluronic grades, they will effectively suppress foam. Field tests have shown that a 1:9 ratio of L61 to L62 or L63 (or any other Pluronic on the Grid) effectively lowers their foam without adversely affecting their other characteristics.

Example II:

Formulating a dispersing agent for hydrophobic pigments

In wetting and dispersing hydrophobic pigments in water, at relatively high solids content, any agent added to aid in dispersion should have the following properties: good dispersing; good wetting; relatively low foam; chemical stability; light color; and the ability to create a hydrophilic surface.

Good dispersion and the most hydrophilic characteristics are found in the upper right quadrant (or high-molecular-weight area) of the Grid. The best wetting and the lowest foam are in the lower left quadrant. Since dispersion and hydrophilic characteristics are the most important properties, and since the foam and the wetting action of the Pluronics in the upper right quadrant are not objectionable, F68 and F88 are the most logical to evaluate.

In actual tests, both of these proved to be very effective in preparing high-solids slurries in water, with F88 being the better of the two. However, when latex binder was added to these slurries, they tended to form gels after extended standing. Further tests revealed that the addition of L81 (the most hydrophobic Pluronic) to the F88 grade made these gels highly fluid again. Later investigation of the area between the two extreme ranges revealed that P85 produced a very satisfactory product that was completely stable at high solids content.

the Pluronic series has a growing list of commercial applications!

Agricultural Products: Emulsifiers; emulsion stabilizers; dispersing and wetting agents; dust-laying agents.

Cosmetics: Deodorants; hair preparations; lotions; oral-hygiene products; shampoos.

Formulated Detergents: Laundry products; dairy cleaners; detergent sanitizers; floor cleaners; rug cleaners; mechanical-dishwashing products; rinse aids; scouring powders.

Latex and Rubber: Stabilizers; viscosity regulator for styrene-butadiene latices; vulcanizers.

Metal Cleaning: Alkaline metal cleaners; aluminum anodizing; passivating; steel pickling.

Metal Cutting: Water-soluble coolant and lubricant formulations.

Paint: Emulsion paints; pigment dispersing; improved leveling, spreading, and brushability; viscosity control.

Paper: Coating colors, reducing viscosity; pigment dispersing; latex stabilizing.

Pharmaceuticals: Dispersants for antibiotics; solubilizers for antibiotics and vitamins.

Petroleum: Demulsifying agents; dispersants and lubricants for drilling muds; wetting agents for secondary recovery.

Plasticizers: Methylmethacrylate, phenol-formaldehyde, urea-formaldehyde, and polystyrene resins.

Polyurethane Resins: Reacting with diisocyanates to give economical foams of superior properties.

Soap: Soap-synthetic and all-synthetic bars; lime-soap dispersant.

Textiles: Desizing formulations; antistatic agents; continuous hypochlorite bleaching; dye leveling; kier boiling; soaping-off prints; softening warp sizes.

Water Treating: Boiler water; scale prevention in industrial water supplies.

The Pluronic Grid can help you choose the proper chemicals for testing, but only a thorough evaluation in your own laboratories can give you the full scope of what the Pluronic polyols can do for you. Write today for samples, data sheets pertinent to your application, and other technical information. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

Wyandotte CHEMICALS

MICHIGAN ALKALI DIVISION

Pacing Progress with Creative Chemistry

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CHLORINE
MURIATIC ACID • CALCIUM CARBONATE • CALCIUM CHLORIDE
GLYCOLS • CHLORINATED SOLVENTS • SYNTHETIC DETERGENTS
OTHER ORGANIC AND INORGANIC CHEMICALS

Litho in U.S.A.

Form No. 561

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Detergent D-40 D-40-SF D-40-FG D-60	Oronite Chemical Co.	Alkyl aryl sodium sulfonate	Detergent Wetting	Granular	40%	Anionic	General industrial and household cleaning agents; drum dried detergents of light color, bland odor, and possessing high surface activity in acidic or alkaline solutions, and in soft or hard water; "D-40 SF" is flake form; "D-40-FG," powder form; "D-60" is 56%, granular form
Detergent-G	Joseph Turner & Co.	Dodecylbenzene sodium sulfonate	Detergent	Powder	40%	Anionic	Detergent for general industrial use
Detergent L-89	Jacques Wolf & Co.	Polyoxyethylene thioether	Wetting	Liquid	35%	Nonionic	Wetting agent for leather and textiles
Detergent-M	Ciba Co.	Amino condensation product	Detergent	Solid	14%	Anionic	Water soluble; pH of one percent solution at 25°C. —8.5
Detergent-MXP	Monsanto Chemical Co.	A built powder containing Sterox CD	Detergent	Powder		Nonionic	A compounded non-sudsing detergent; stable to strong alkali; uses: intermediate, textiles; industrial cleaning
Detergent Sanitizer Conc.	Onyx Oil & Chemical Co.	Mixture of "BTC-100%" and "Neutronyx 600," in ratio 1:1	Germicide Detergent	Liquid	100%	Cationic	Product contains cationic germicide with nonionic wetting agent; Use: sanitizing detergent
Detergent Slurry	Oronite Chemical Co.	Alkyl aryl sodium sulfonate	Detergent	Slurry	42%	Anionic	A slurry for spray or drum drying purposes
Detergent WW	Whitfield Chemical Co.	A salt of an alkyl aryl sulfonate	Detergent	Liquid		Anionic	A safe cleaning agent for all dirty surfaces, metals, plastics, glass and rubber
Detergent-77	Peck's Products Co.		Detergent	Liquid		Nonionic	General household and industrial cleaner
Detergent 80	Peck's Products Co.	An alkanolamine condensate	Detergent	Liquid	20%	Nonionic	An industrial cleaner
Detergent 220	E. F. Drew & Co.	A coconut oil amino condensate	Detergent	Liquid	100%	Anionic	An all-purpose cleaner designed for use with high concentrations of phosphate salts
Detergent 274 606	Pennsylvania Detergents Co.		Detergent	Solid	40%	Anionic	"Detergent 274" is a compounded cleaner for floors, including concrete; "Detergent 606" is an industrial metal cleaner
Detergent 1011	E. F. Drew & Co.	A secondary amide derivative of lauric and related acids	Detergent	Liquid	100%		See also "Wetsyn"
Detergol 1426	L. Sonneborn Sons, Inc.		Detergent	Liquid	100%	Nonionic	Textile use
Detersol	Standard Chemical Products	A built syndet-soap	Detergent	Paste		Anionic	A textile product for boiling off operations
Dexolene G B MTV	Dexter Chemical Co.	Sodium dioctyl sulfosuccinate	Wetting Penetrant	Liquid		Anionic	A textile wetting agent; "Dexolene MTV" contains an antifoaming agent.
Dextro Fast Salt M	Dexter Chemical Co.	A polyoxylated fatty alcohol	Dispersant	Liquid		Nonionic	A textile dyeing assistant for acid and chrome dyes, as a dispersant and leveling agent
DHL-95	Geigy Chemical Corp.	High purity fatty acid alkanolamide	Detergent	Solid	95%	Nonionic	Viscosity builder, foam stabilizer
D-Lite	Du Bois Co.	Built alkyl aryl sulfonate	Detergent	Powder		Anionic	Institutional hand dishwashing
Dial Shampoo (retail)	Armour & Co.	A blend of several synthetic detergents	Detergent	Liquid		Anionic	Shampoo
Diam 21 26	General Mills, Inc.	Coconate diethanolamide	Detergent Intermediate	Solid	100%	Cationic	Intermediates for corrosion inhibitors, dispersants, textile chemicals
Diamco 100	Kali Mfg. Co.	N-fatty trimethylene diamine	Detergent	Liquid	100%	Nonionic	A textile dye leveling and scouring agent
Dianol ANC	Quaker Chemical Products	Alkyl aryl sulfonate	Detergent Wetting	Liquid	30%	Anionic	Textile uses
Dianol ANS	Quaker Chemical Products	Alkyl aryl sulfonate	Detergent Wetting	Paste	43%	Anionic	Textile uses
Dianol GN	Quaker Chemical Products	Fatty amide condensate	Detergent Wetting	Liquid	98%	Nonionic	Industrial cleaning agent; textile uses
Dianol N	Quaker Chemical Products	Fatty amide sulfate	Detergent	Liquid	30%	Anionic	Neutral detergent for textile and general uses
Dianol S	Quaker Chemical Products	Fatty amide sulfate	Detergent	Paste	24%	Anionic	Textile and general industrial detergents
Dianol TC	Quaker Chemical Products	Modified alkyl aryl sulfonate	Detergent Wetting	Liquid	25%	Anionic	Fulling and scouring agent; dye dispersant

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Dianol 11	Quaker Chemical Products	Alkyl aryl sulfonate	Wetting	Liquid	45%	Anionic	Textile uses
Dianol 20	Quaker Chemical Products	Ester sulfate	Wetting	Liquid	65%	Anionic	Textile uses
Di Aqua 80 40	Diamond Alkali Co.	Alkyl aryl sulfonate	Detergent	Flake Powder	80% 40%	Anionic	Both products in flake and powder form; inorganic-sodium sulfate only; for general industrial detergent use
Dichloran	Fine Organics, Inc.	Alkyl dimethyl dichlorobenzyl ammonium chloride	Germicide	Liquid	50%		Bactericide and sanitizing agent
Diglycol-laurate -oleate -stearate	Carlisle Chemical Works Glyco Products Co. C. P. Hall Co. Kessler Chemical Co. Van Dyk & Co.	As named	Emulsifier		100%	Nonionic	Laurate, water insoluble; stearate is water dispersible. Uses: general water-in-oil emulsifier for cosmetics, foods, etc.
Dispersant NI-O NI-E	Oronite Chemical Co.	Condensation product of ethylene oxide and an alkyl phenol	Emulsifier Detergent	Liquid	100%	Nonionic	Oil soluble; water-in-oil emulsifier; uses: dry cleaning detergent, etc.
Dispersant NI-W	Oronite Chemical Co.	Condensation product of ethylene oxide and an alkyl phenol	Detergent Wetting	Liquid	92%	Nonionic	Water soluble; a low sudsing detergent especially for use in laundries and in automatic washing machines
Diversol CX	Diversey Corp.	A compounded product	Bactericide	Crystals		Anionic	A bactericide disinfectant for general sanitization of glassware, dishes, aluminum ware, etc.
DMBC	Fine Organics, Inc.	Lauryl dimethylbenzyldimethyl ammonium chloride	Germicide	Liquid	50%	Cationic	Sanitizing agent; see under "Germitol"
DMBC Special	Fine Organics, Inc.	Mixture of alkenyl dimethyl ethyl ammonium bromide and lauryl dimethyl benzyl dimethyl ammonium chloride	Germicide Algaecide	Liquid	70%	Cationic	Effective for control of algae and as a sanitizing agent
Do All	Armour & Co.	Built alkyl aryl sodium sulfonate	Detergent	Bead		Anionic	Built all-purpose detergent for domestic or industrial use
Dominol TO -100 IO -100 MO-100 TL -100 TM- 50 TS - 50	Dominion Products, Inc.	Triethanolamine oleate	Emulsifier	Paste	100%	Anionic	Nomenclature: The first letter signifies the organic base such as T—triethanolamine, M—morpholine, I—isopropanolamine. The second letter the fatty acid as O—oleic, S—stearic, L—laurate. The number following represents the % active present. Use emulsifiers for industrial floor cleaners, etc.
Dowfax 2A1	Dow Chemical Co.	A sulfonated product	Detergent Wetting	Solid Powder	85%	Anionic	Industrial hard surface cleaner where high electrolyte is encountered as in wool carbonizing, kier boiling of cotton, dairy cleaners, pulp cooking, plating baths, etc.
Dreft	Procter & Gamble Co.		Detergent	Granules		Anionic	Built detergent for dishes and fine fabrics
Dreft-Liquid (retail)	Procter & Gamble Co.		Detergent	Liquid		Anionic	Dishwashing compound
Drene (retail)	Procter & Gamble Co.		Detergent	Liquid		Anionic	Hair shampoo
Drucal CH	E. F. Drew & Co.	Sodium lauroyl isethionate	Detergent	Powder	95%	Anionic	Sudsing detergent for use in creme shampoos, household detergents, powdered domestic cleaners, etc.
Drucolene RT	E. F. Drew & Co.	A blend of sulfated oil and coconut oil	Softener Anti-static	Liquid	85%	Anionic	A synthetic softener and plasticizer
Drucomine A	E. F. Drew & Co.		Softener	Paste	50%	Cationic	A durable softener for all fibers
Drukeel 8	E. F. Drew & Co.	Sodium polyamino—carboxylate	Sequestrant	Liquid	47%	Anionic	Sequestering agent for calcium, magnesium and iron
Drumul C	E. F. Drew & Co.	Blend of solvents and nonionic emulsifiers	Emulsifier	Liquid	100%	Nonionic	Paint and tar remover on textiles for general use except under acid conditions

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Drumul 30W	E. F. Drew & Co.	Purified polyoxyethylene fatty ester	Emulsifier	Liquid	100%	Nonionic	Emulsifier for mineral oils
Drustat —H	E. F. Drew & Co.	A substituted oleoyl glyoxalidine ethyl sulfate	Lubricant Anti-static	Liquid, Paste	100%	Cationic	Anti-static finish for all new hydrophobic fibers and for wool; "Drustat H" is a slightly modified product
Druterge ON	E. F. Drew & Co.	Alkyl aryl polyoxethylene ether	Detergent Emulsifier	Liquid	100%	Nonionic	Stable in acid and alkaline solutions, hard water, etc.
Druterge TG Conc.	E. F. Drew & Co.	Oleoyl methyl tauride sodium salt	Emulsifier	Liquid	33%	Anionic	Versatile textile surfactant, dyeing assistant, lime soap dispersant, etc.
Druterge PE	E. F. Drew & Co.	A blend of solvents, anionic emulsifiers and pine oil	Emulsifier	Liquid	50%	Anionic	Cleaning polyester fibers of all foreign matter particularly graphite and black oil
Druterge 2HVS	E. F. Drew & Co.	Blend of anionic and nonionic detergents	Detergent	Paste	66%	Anionic	Used in processing cashmere, etc.
Druterge CR	E. F. Drew & Co.	A coconut fatty acid amino condensate	Detergent	Liquid	100%	Anionic	Detergent for all textile wet processing operations
Druterge NCE	E. F. Drew & Co.	Vegetable oil ethylene oxide condensate	Detergent Emulsifier	Liquid	100%	Nonionic	Detergent for acid fulling and scouring
Drutone D	E. F. Drew & Co.	Sulfated glyceryl trioleate, coconut oil	Lubricant	Liquid	60-62%	Nonionic	Imparts silky hand to cottons
Duponol AM	E. I. du Pont de Nemours & Co.	Ammonium lauryl sulfate	Detergent	Paste		Anionic	Shampoo base
Duponol C	E. I. du Pont de Nemours & Co.	Sodium lauryl sulfate	Detergent	Powder		Anionic	Meets specification of U.S.P. XIV
Duponol D Paste	E. I. du Pont de Nemours & Co.	Mixed fatty alcohol sodium sulfate	Detergent	Paste		Anionic	General heavy duty detergent; dyeing assistant
Duponol EP	E. I. du Pont de Nemours & Co.	Fatty alcohol alkylolamine sulfonate	Detergent	Liquid		Anionic	Shampoo base
Duponol G	E. I. du Pont de Nemours & Co.	Fatty alcohol amine sulfate	Emulsifier	Paste		Anionic	Oil soluble emulsifying agent
Duponol L-144-WDG	E. I. du Pont de Nemours & Co.	Fatty alcohol sodium sulfate	Emulsifier	Liquid		Anionic	An emulsifier for dry cleaning use and for fungicidal sprays
Duponol L-142	E. I. du Pont de Nemours & Co.	Fatty alcohol sodium sulfate	Emulsifier	Powder		Anionic	For emulsifying and emollient effects in cosmetics
Duponol LS Paste	E. I. du Pont de Nemours & Co.	Technical oleyl alcohol sulfate	Detergent	Paste		Anionic	Scouring agent
Duponol ME Dry	E. I. du Pont de Nemours & Co.	Technical lauryl alcohol sulfate	Detergent Wetting	Powder		Anionic	Wetting properties are very efficient. Detergency is excellent. Minimum electrolyte
Duponol OS	E. I. du Pont de Nemours & Co.	Fatty alcohol amine sulfate composition	Emulsifier	Liquid		Anionic	Emulsifying agent for O/W emulsions
Duponol PC	E. I. du Pont de Nemours & Co.	Sodium lauryl sulfate	Wetting Detergent Emulsifier	Powder		Anionic	Specially processed for use in dental preparations; Meets specification of U.S.P. XIV
Duponol RA	E. I. du Pont de Nemours & Co.	Alcohol ether sodium sulfate	Emulsifier Detergent	Liquid		Anionic	Textile detergent
Duponol SN	E. I. du Pont de Nemours & Co.	Fatty alcohol sodium sulfate	Detergent	Liquid		Anionic	A shampoo base
Duponol ST	E. I. du Pont de Nemours & Co.	Fatty alcohol triethanolamine sulfate	Detergent	Liquid		Anionic	A shampoo base
Duponol WA Paste WA Dry	E. I. du Pont de Nemours & Co.	Technical lauryl sodium sulfate	Detergent Wetting	Paste		Anionic	More water-soluble than "Duponol D" and lathers better in cold water. "Duponol WA Dry" is the
Duponol WAQ	E. I. du Pont de Nemours & Co.	Technical lauryl sodium sulfate	Detergent	Paste		Anionic	Fluid paste designed for shampoos
Duponol WAT	E. I. du Pont de Nemours & Co.	Triethanolamine salt of lauryl sulfate	Detergent	Liquid		Anionic	Suitable for shampoos and related cosmetic products
Duponol XL	E. I. du Pont de Nemours & Co.	Modified alcohol sulfate	Detergent	Paste		Anionic	Shampoo base
Ecconol 66	Essential Chemicals Co.	Fatty amide condensate	Wetting Detergent	Liquid	100%	Nonionic	Light colored wetting agent, thickener, emulsifier for liquid detergents
Ecconol 67	Essential Chemicals Co.	Fatty amide condensate	Wetting Detergent	Liquid	100%	Nonionic	High phosphate tolerance for liquid detergents
Ecconol 606	Essential Chemicals Co.	Organic alkyl aryl sulfonate	Wetting Detergent	Liquid	60%	Anionic	Detergency, foam, wetting, surface tension reducing properties for liquid formulation; crystal clear
Ecconol 607	Essential Chemicals Co.	Foam stabilized organic alkyl aryl sulfonate	Wetting Detergent	Liquid	60%	Anionic	Liquid dishwash and rug shampoo base
Ecconol 312	Essential Chemicals Co.	Foam stabilized ethylene oxide condensate	Wetting Detergent	Liquid		Anionic	Liquid base for high sudsing cleaners

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Emcol 4150	Emulsol Chemical Corp.	Complex fatty acid derivative of aliphatic sulfonate	Detergent Wetting	Liquid	35%	Anionic	Completely water soluble; for cosmetics, textiles
Emcol 5100	Emulsol Chemical Corp.	Alkanolamine fatty acid condensate	Detergent Wetting	Liquid	90%	Nonionic	Solution becomes viscous with addition of water; thickening agent; emulsifier, etc.
Emcol 5130 5137	Emulsol Chemical Corp.	Alkanolamine condensate	Detergent	Liquid	97%	Nonionic	Water soluble, moderate foaming; "Emcol 5137" is used mainly in compounding liquid detergent formulations
Emcol 5138A	Emulsol Chemical Corp.	Alkanolamine condensate	Emulsifier	Liquid	97%	Nonionic	Dry cleaning detergent
Emcol 5139P	Emulsol Chemical Corp.	Alkanolamine condensate	Detergent	Liquid	97%	Nonionic	Foam stabilizer, solubilizer and emulsifier
Emcol CA	Emulsol Chemical Corp.	Mono and diglycerol stearate	Emulsifier	Wax	100%	Anionic	Self emulsifying; cosmetics
CAD		Diethylene glycol stearate	Emulsifier	Wax	100%	Anionic	Self emulsifying; cosmetics
DOS		Diethylene glycol oleate	Emulsifier	Liquid	100%	Anionic	Self emulsifying; cosmetics
Emcol E-11	Emulsol Chemical Corp.	Alkyl benzyl triethyl ammonium chloride	Germicide Anti-static	Liquid	50%	Cationic	Primarily intended for industrial use
Emcol E-607	Emulsol Chemical Corp.	N (lauroyl colamino formyl methyl) pyridinium chloride	Germicide Emulsifier	Powder	90%	Cationic	Deodorant, antistatic agent, germicide; cationic emulsifier for cosmetic and industrial use
Emcol E-607S	Emulsol Chemical Corp.	Stearoyl analog of "Emcol E-607"	Germicide	Powder	90%	Cationic	Cosmetic applications
Emcol H-31A	Emulsol Chemical Corp.	Polyethylene glycol 400 oleate	Emulsifier	Liquid	100%	Nonionic	Cosmetic applications
H-35A		Polyethylene glycol 400 stearate	Emulsifier	Wax	100%	Nonionic	Cosmetic applications
Emcol H-50A	Emulsol Chemical Corp.	Fatty acid condensation product of a polyhydric alcohol	Emulsifier	Liquid	100%	Nonionic	An oil-in-water emulsifier, for DDT sprays in aliphatic solvents
Emcol H-52	Emulsol Chemical Corp.	Blend of oil soluble sulfonates and polyoxyethylene ethers	Emulsifier	Liquid		Anionic	Emulsifier for aliphatic hydrocarbons and degreasing concentrates; Kerosene emulsifier
Emcol H-65C	Emulsol Chemical Corp.	Blend of polyalcohol carboxylic esters and oil-soluble sulfonates	Emulsifier	Liquid		Anionic	Designed to give a 2% clear dispersion of chlordane in water
Emcol H-77	Emulsol Chemical Corp.	Blend of polyalcohol carboxylic acid esters and sulfonated oils	Emulsifier	Liquid		Anionic	For the formulation of a wide range of agricultural emulsifiable concentrates
Emcol H-83T	Emulsol Chemical Corp.	Blend of polyoxyethylene ethers and oil-soluble sulfonates	Emulsifier	Liquid		Anionic	Emulsifier for chlordane, toxaphene and other insecticide compounds
Emcol H-83X							
H-85T							
H-85X							
Emcol H-140	Emulsol Chemical Corp.	Blend of polyoxyethylene ethers and oil-soluble sulfonates	Emulsifier	Liquid		Anionic	Designed for five pound/gallon of malathion formulation
Emcol H-141	Emulsol Chemical Corp.	Blend of polyoxyethylene ethers and oil-soluble sulfonates	Emulsifier	Liquid		Anionic	Designed for eight pound/gallon of malathion formulation
Emcol H-400 H-500 H-600	Emulsol Chemical Corp.	Blend of polyoxyethylene ethers and oil-soluble sulfonates	Emulsifier	Liquid		Anionic	For the formulation of a wide range of agricultural emulsifiable concentrates
Emcol H-700 H-800	Emulsol Chemical Corp.	Blend of polyoxyethylene ethers and oil-soluble amine salts of sulfonic acids	Emulsifier	Liquid		Anionic	Emulsifiers for a wide range of pesticide formulations
Emcol H-A H-B H-C	Emulsol Chemical Corp.	Complex sulfonates	Emulsifier	Liquid		Anionic	Emulsifiers for insecticide concentrates
Emcol K-8300	Emulsol Chemical Corp.	Complex aliphatic sulfonate	Emulsifier Stabilizer	Liquid	35%	Anionic	Emulsifier for the preparation of latices, for use in synthetic latices and other polymer emulsions
Emcol MSC	Emulsol Chemical Corp.	Glycerol monostearate	Emulsifier	Solid	100%	Nonionic	Emulsifier for the cosmetic and drug industries
Emcol P10-59	Emulsol Chemical Corp.	Amine salt of dodecyl benzene sulfonic acid	Emulsifier	Liquid		Anionic	Oil soluble
Emcol RDC-D	Emulsol Chemical Corp.	Diethylene glycol laurate	Emulsifier	Liquid	100%	Nonionic	Surface tension of 0.1 per cent solution 31 dynes/cm.
Emkabase	Emkay Chemical Co.	Naphthenic, amino sulfonate blend	Emulsifier	Liquid		Anionic	Emulsifier for mineral oil
Emkafol D	Emkay Chemical Co.	Highly sulfonated fatty acid ester	Wetting Rewetting	Liquid		Anionic	Wetting and rewetting agent
Emkafol OT	Emkay Chemical Co.	Sulfonated fatty ester	Rewetting	Liquid		Anionic	
Emkafol S	Emkay Chemical Co.		Penetrant	Liquid		Anionic	Scouring agent for lime and iron spots
Emkagen 49	Emkay Chemical Co.	Blend of amino condensate and alkyl aryl sulfonate	Detergent	Liquid		Anionic	Print washing

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Emkagen BT	Emkay Chemical Co.	Amino-condensate blend	Detergent	Liquid		Nonionic	Synthetic detergent for wool scouring
Emkagen Concentrate	Emkay Chemical Co.	Amide amino condensate	Detergent Wetting Emulsifier	Liquid	100%	Nonionic	Synthetic detergent
Emkapon BR	Emkay Chemical Co.	Amide sulfonate	Detergent	Liquid		Anionic	General purpose surfactant
Emkapon CT	Emkay Chemical Co.	Polyoxyethylene derivative	Detergent	Paste		Anionic	General textile detergent
Emkapon L	Emkay Chemical Co.	Amide sulfonate	Detergent	Paste		Anionic	
Emkapon K	Emkay Chemical Co.	Sulfated fatty amide	Detergent	Paste		Anionic	A textile agent for scouring and emulsifying wetting
Emkapon DS SS TS	Emkay Chemical Co.	Amide sulfonate	Detergent	Liquid		Anionic	General textile detergents
Emkaterge B	Emkay Chemical Co.	Synthetic detergents with alkyl terpenes	Wetting	Liquid		Nonionic	Ease product for compounding graphite remover
Emkatex A-1	Emkay Chemical Co.	Amino condensate with solvents	Detergent	Liquid		Anionic	Dyeing assistant
Emkatex CF 32	Emkay Chemical Co.	Amino condensate with penetrants	Detergent	Liquid		Anionic	Detergent for heavy cotton duck twills
Emkatex F 2; LW	Emkay Chemical Co.	Blends of a synthetic detergent and solvents	Detergent	Liquid		Nonionic	Cleaner
Emkatex LS	Emkay Chemical Co.	Polyoxyethylene derivative	Detergent	Paste		Nonionic	Dye leveling and retarding agent
Emulgade F	Fallek Products Co.	Mixture of higher saturated fatty alcohols and fatty alcohol sulfates	Emulsifier	Flakes	100%	Anionic	For liquid emulsions, cosmetic and pharmaceutical creams and ointments O/W type
Emulphogene AM-870	Antara Chemicals, a division of General Aniline & Film Corp.	Tallow alcohol ethylene oxide reaction product	Emulsifier Solubilizer	Wax	100%	Nonionic	Emulsifier in rubber, textile and leather industries; used for acid degreasing of wool; surfactant for de-inking of paper stock
Emulphogene BC-420	Antara Chemicals, a division of General Aniline & Film Corp.	A polyoxyalkylene ethanol type	Emulsifier	Liquid	100%	Nonionic	Intermediate in the manufacture of high-foaming anionic surfactants
Emulphogene BC-720	Antara Chemicals, a division of General Aniline & Film Corp.	A polyoxyalkylene ethanol type	Foamer Detergent Solubilizer	Liquid	100%	Nonionic	Solubilizing agent for dodecylbenzene sulfonates; foam stabilizer; detergency promoter. Used in commercial and home liquid dishwashing compounds. Less hydrophilic than BC-840
Emulphogene BC-840	Antara Chemicals, a division of General Aniline & Film Corp.	A polyoxyalkylene ethanol type	Foamer Detergent Solubilizer	Paste	100%	Nonionic	Solubilizing agent for dodecylbenzene sulfonates, foam stabilizer, and detergency promoter; used in liquid dishwashing compounds and alkaline bottle-washing compounds; more hydrophilic than "Emulphogene BC-720"
Emulphor EL-620	Antara Chemicals, a division of General Aniline & Film Corp.	Polyoxyethylated vegetable oil	Emulsifier Dispersant	Liquid	100%	Nonionic	Emulsifying agent for oils, waxes and organic solvents; dispersant for pigments. Its uses parallel those of Emulphor EL-719; of particular interest where an anhydrous, slightly more oil-soluble product is required
Emulphor EL-719	Antara Chemicals, a division of General Aniline & Film Corp.	Polyoxyethylated vegetable oil	Emulsifier Dispersant	Liquid	96%	Nonionic	Emulsifying agent for oils, waxes, organic solvents, polyester resins; dispersant for pigments. Used in manufacture of polyvinylacetate paints, leather, paper, urethane foams, polyester resin emulsions, etc.
Emulphor ON-870	Antara Chemicals, a division of General Aniline & Film Corp.	Polyoxyethylated fatty alcohol	Emulsifier Stabilizer Dispersant	Wax	100%	Nonionic	Emulsifier for mineral oils, fatty acids, and waxes; stabilizer for natural or synthetic rubber latex emulsions; surfactant for use in acid degreasing of wool and in leather industry
Emulphor VN-430	Antara Chemicals, a division of General Aniline & Film Corp.	Polyoxyethylated fatty acid	Emulsifier Dispersant	Liquid	99%	Nonionic	Emulsifier for mineral oils, liquid fatty oils, pesticides and cutting oils; lubricant additive in textile industry; cosmetic emulsifier
Emulsan O K	Reilly-Whiteman-Walton Co.	Polyethylene glycol ester of a fatty acid	Emulsifier Dispersant	Liquid	100%	Nonionic	"K" is the laurate, "O" is the oleate. A general emulsifier for textile, agriculture and other industrial uses

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Emulsept	Emulsol Corp.	$CH_3(CH_2)_{11}COOCH_2CH_2NHCOCH_2N\text{-}Cl$ (with C_5H_5)	Germicide Detergent	Liquid	10%	Cationic	A cationic germicide with detergent properties
Emulsept 2X	Emulsol Corp.	Same as Emulsept	Germicide	Liquid	20%	Cationic	Double strength "Emulsept"; sold to manufacturers only
Emulser OM	Arkansas Co.	Alkanolamine-poly-glycol-fatty acid condensate	Emulsifier	Liquid	95%	Nonionic	Emulsifying agent for waxes
Emulsifier AO-23	E. F. Houghton & Co.	A complex quaternary ammonium compound	Emulsifier	Liquid	100%	Cationic	Used in emulsifying insecticides
Emulsifier L-32 L-34 L-45B	Jacques Wolf & Co.	Fatty acid ester of higher polyalcohols	Emulsifier	Liquid	100%	Nonionic	An oil in water emulsifier for vegetable, animal and mineral oils; "L-32" has good solubility in organic solvents and above oils
Emulsifier L-34A L-45	Jacques Wolf & Co.	Fatty acid ester of higher polyalcohols	Emulsifier	Liquid	96%	Nonionic	A degreasing agent with kerosene in leather industry; the "L-45" compound is 85% active and contains 15% water
Emulsifier 2 3 M-O-1	Kessler Chemical Co.	Polyglycol esters of fatty acids	Emulsifier	Liquid Solid	100%	Nonionic	"Emulsifiers 2" and "3" are oil-in-water types, soluble in aliphatic and aromatic solvents for degreasing compounds, agricultural sprays, etc. "Emulsifier 3" and "M-O-1" are esters of unsaturated acids. "Emulsifier M-O-1," soluble in aliphatic solvents, is used in leather softening, textile lubrication, etc.
Emulsifier O-205 O-141	Jacques Wolf & Co.	Fatty acid ester of higher polyalcohols	Emulsifier Dispersant	Liquid	100%	Nonionic	Moderately soluble in water or kerosene; not acid or alkali stable; uses: mineral, vegetable or animal oil emulsifier; degreasing or lubricating agent; "O-141" designed for use with DDT
Emulsifier P	Mona Industries, Inc.		Emulsifier	Liquid	100%	Nonionic	A specialized product designed for emulsifying pine oil
Emulsynt 219 224 225 226 295	Van Dyk & Co.	Polyoxyethylene glycol laurate	Emulsifier	Liquid	100%	Nonionic	A series of compounds containing increasing amounts of ethylene oxide with increased number. "Emulsynt 219" is water soluble, "295," water insoluble. Use: Cosmetics, pharmaceuticals, etc.
Emulsynt 480	Van Dyk & Co.	Polyoxyethylene glycol oleate	Emulsifier Dispersant	Liquid	100%	Nonionic	Acts as a solvent for dyes and as a dispersing agent for pigments
Emulsynt 610A	Van Dyk & Co.	Polyoxyethylene glycol laurate	Emulsifier Wetting	Liquid	100%	Nonionic	Water soluble; insoluble in mineral oil. Uses: Dispersion of pigments, cosmetic emulsifier, etc.; formerly listed as "Emulsifier 610A"
Emulsynt 2180	Van Dyk & Co.	Polyoxyethylene glycol oleate	Emulsifier	Liquid	100%	Nonionic	Water dispersible, alcohol soluble. A vegetable and mineral oil emulsifier in cosmetics such as skin and hair preparations
Emulsynt 2400	Van Dyk & Co.	Polyoxyethylene glycol laurate-oleate	Emulsifier	Liquid	100%	Nonionic	Soluble in water, effective emulsifier over a wide pH range
Energetic R	Armour & Co.	Polyoxyethylene ester of fatty acids	Detergent Wetting	Liquid	90%	Nonionic	A low sudsing detergent for compounding, textile scouring, etc.
Energetic S	Armour & Co.	Polyoxyethylene ester of fatty acids plus an additive	Detergent Wetting	Liquid	94%	Nonionic	Detergent for use in the presence of petroleum and aromatic solvents; used in desizing operations, hosiery finishing, machinery cleaners, waterless hand cleaners, etc.
Energetic W-100	Armour & Co.	Polyoxyethylene alkyl phenol	Detergent Wetting	Liquid	100%	Nonionic	Sudsing type product with superior wetting agent with good detergency for use in textile wet finishing operations, compounding industrial products, etc.
Escolin	Cowles Chemical Co.	Compounded product	Detergent	Powder		Anionic	Heavy duty detergent; designed primarily for use on linens and in industrial and institutional laundries

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Estersulf	Maher Color & Chemical Co.	Alkane sulfonamide ester	Detergent Emulsifier	Liquid	100%	Anionic	Main uses: cutting oils, furniture polish, dry-cleaning soaps
Eumulgin M 8	Fallek Products Co.	Fatty alcohol preparation	Emulsifier	Paste	80%	Nonionic	Insecticides, mineral oil and fat emulsions, emulsion shampoos, permanent waves, textile auxiliaries
Eureka E-2	Atlas Refinery, Inc.	Catonic derivative of a fatty acid diamine condensate	Softener	Liquid	100%	Cationic	Cationic fiber lubricant
Evenate OBX	Amalgamated Chemical Corp.	Polyglycol fatty derivative	Dispersant	Paste	50%	Nonionic	Used in conjunction with "Alk. Pdr. OBX" for one-bath scouring and dyeing of hosiery and piece goods
Evenate SX	Amalgamated Chemical Corp.	A nonionic condensate combined with a glyceride	Dispersant Detergent	Paste	50%	Nonionic	
Evenate Powder, XX	Amalgamated Chemical Corp.	Blend of alkalies and detergents		Powder	100%	Anionic	Used in conjunction with "Evenate SX" for one bath scouring and dyeing of Nylon hosiery
Fab (retail)	Colgate-Palmolive Co.	An alkyl aryl sulfonate plus builders	Detergent	Powder		Anionic	A heavy duty cleanser
Fass TS	American Alcolac Corp.	Tallow fatty alcohol sulfate	Detergent	Paste		Anionic	High temperature detergent
Felso (retail)	Fels & Co.	A built sodium alkyl aryl sulfonate	Detergent	Beads		Anionic	A heavy duty general household detergent
Fine	Fine Laboratories, Inc.	A compounded product containing phosphates	Detergent	Liquid		Anionic	Liquid heavy duty industrial detergent for laundry use, etc.
Flow	DuBois Co.	Mixed alkyl aryl; alkanolamide and ether condensate	Detergent Wetting	Liquid		Anionic	All purpose cleaner and surface tension reducer
Fomagen	B. L. Lemke and Co.	Crude saponin	Wetting Foamer	Solid		Nonionic	A foaming agent for fire extinguishers, etc.; technical refined "Saponin" also available from the same source.
Foamole 2AC-2	Van Dyk & Co.	Polyamides of lauric and myristic acids	Wetting	Liquid		Anionic	A foaming agent, compatible with soap
Foamole 2APD	Van Dyk & Co.	An ethanolamide fatty acid condensate	Detergent Foamer	Gel	100%	Nonionic	A clarifier and thickener; superior to "2AC-2" for viscosity building in shampoos
Foamole AR AW	Van Dyk & Co.	Coconut oil alkanolamide (high amide content)	Detergent Foamer	Liquid	100%	Nonionic	A foam builder for soaps and shampoos; also a cosmetic additive to control viscosity on dilution; "Foamole AW" useful in hard water soaps
Foamole G	Van Dyk & Co.	Sulfated fatty alcohols and amides	Detergent	Liquid	50%	Anionic	A mixed synthetic suitable for shampoos
Foamole S	Van Dyk & Co.	A sulfated fatty alcohol and amide	Detergent	Liquid	100%	Anionic	A high foam, quick rinsing product, clear at low pH values. Useful for shampoos
Foam Stabilizer N-22 55	Geigy Chemical Corp.	A fatty condensate	Foamer	Solid	100%	Nonionic	A foam stabilizer for anionics and nonionics; "55" is in powder form
G-1295 1300	Atlas Powder Co.	Polyoxyethylene fatty glycerides	Emulsifier	Liquid	100%	Nonionic	Emulsifiers for use in textile chemical formulations
G-1425 1441 1471	Atlas Powder Co.	A polyoxyethylene sorbitol lanolin derivative	Emulsifier	Paste	100%	Nonionic	Materials similar to lanolin in appearance and feel, yet having entirely different solubility characteristics; for cosmetic use; "G-1425" is water dispersible; "G-1441" is water soluble; "G-1471" is a close analogue of "G-1425" and "1441"
G-1702 1726	Atlas Powder Co.	Polyoxyethylene sorbitol beeswax derivatives	Emulsifier	Solid	100%	Nonionic	Designed for cosmetic use, "G-1702" is oil dispersible; "G-1726" is water dispersible
G-2145 2151 2152	Atlas Powder Co.	Polyoxyethylene stearate	Emulsifier	Solid	100%	Nonionic	Drug and cosmetic type emulsifiers
G-2162	Atlas Powder Co.	Polyoxyethylene propylene glycol monostearate	Emulsifier	Paste	100%	Nonicnic	Water soluble-general emulsifier
G-7166P	Atlas Powder Co.	Polyoxyethylene sorbitan tristearate	Emulsifier	Solid	100%	Nonicnic	Water soluble-general emulsifier
G-7596J	Atlas Powder Co.	Polyoxyethylene sorbitan monolaurate	Detergent	Liquid	100%	Nonionic	
G-8916P	Atlas Powder Co.	Polyoxyethylene sorbitan esters of mixed fatty and rosin acids (tall oil)	Emulsifier	Liquid	100%	Nonionic	
G-9446N	Atlas Powder Co.	Polyoxyethylene sorbitan monooleate	Emulsifier	Liquid	100%	Nonionic	

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Gentle Fels	Fels & Co.	Compound containing alkyl aryl sulfonate, alkanolamide, etc.	Detergent	Liquid		Anionic	A liquid for dishwashing and fine fabrics
Germ-i-tol Conc.	Fine Organics, Inc.	Dimethyl benzyl lauryl ammonium chloride	Germicide	Liquid	50%	Cationic	A sanitizer; suggested concentration, 200 PPM; also supplied in a 97-100% active solid; phenol coeff, against S.A. at 20°C., 300; at 37°C.-407
Gliddene N NS S	Glidden Co.	Treated lecithin (U.S. Pat. 2,629,662)	Emulsifier	Paste	60%*	Nonionic	Emulsifiers of the O/W type designed for use at lower pH values. *Per cent active as acetone insoluble
Gliddophil C, H, P, L, E, SH, SG, IM, IL	Glidden Co.	Refined lecithin in suitable carriers such as cocobutter, carbitol, etc.	Emulsifier	Solid Paste Liquid	55-77%*	Nonionic	A wide spectrum of properties including both O/W and W/0 type emulsifiers. *Per cent active represents acetone insoluble
Glim (retail and bulk)	B. T. Babbitt, Inc.		Detergent	Liquid		Anionic	A liquid dishwashing and general household detergent
Glycerol Monolaurate Oleate Stearate Ricinoleate, etc.	Carlisle Chemical Works Glyco Products Co. Goldschmidt Chemical Co. Kessler Chemical Co. Geigy Chemical Corp. Mathe Chemical Co. Process Chemical Co.	As named	Emulsifier	Liquid Paste Solid	100%	Nonionic	Emulsifiers of this type also frequently occur under trade names as "Aldo 33," "Tegin 515," etc.
Glycol Esters	Carlisle Chemical Works Glyco Products Co. Kessler Chemical Co. Mathe Chemical Co. Process Chemical Co. Witco Chemical Co.	As named	Emulsifiers	Liquid Solid Paste	100%	Nonionic	A wide range of emulsifiers occur as glycol condensates useful in agricultural sprays, cosmetics,
Goremul A	Glyco Products Co.	Polyhydric alcohol ether fatty acid condensate	Emulsifier Dispersant	Solid	100%	Anionic	Wax solid; water dispersible; an emulsifier in the presence of acids, salts, etc.
Hallco C-430 C-451	C. P. Hall Co.	Complex fatty acid ester	Detergent Emulsifier	Liquid	100%	Nonionic	A dry cleaning detergent (oil soluble)
Hallco CPH-123	C. P. Hall Co.	Complex fatty acid derivative	Emulsifier Wetting	Liquid	100%	Nonionic	For preparation of agricultural sprays, insecticides, etc.
Hallco 9279 9309 9429	C. P. Hall Co.	Complex fatty acid condensates	Rewetting	Liquid	100%	Nonionic	Used in textile, paper and allied field
Halo (retail)	Colgate-Palmolive Co.	The ammonium salt of the sulfated monoglyceride	Detergent	Liquid		Anionic	Shampoo
Hartofol C	Hart Products Corp.	Alkyl aryl sodium sulfonate	Penetrant Emulsifier Wetting	Liquid	45%	Anionic	Viscous liquid; soluble in warm water; uses: textiles, scouring, wetting out, etc.
Hartopon B	Hart Products Corp.	Modified alcohol sulfate	Detergent	Paste		Anionic	Textile scouring agent
Hi Foam Base LL	Maher Color & Chemical Co.	Aliphatic amide alkyl aryl sulfonate	Detergent	Liquid	100%	Anionic	For shampoos, bubble baths, rug detergents and dishwashing compounds
Hi Tone	Utility Chemical Co.	A compounded product	Detergent Emulsifier	Liquid		Nonionic	General all purpose detergent
HS-31 Emulsifier	Thompson Chemicals Corp.	Mixed polyglycol esters modified by anionic additives	Emulsifier	Liquid		Anionic	An agricultural emulsifier for 2,4-D, 2,4,5-T, DDT, BHC, Lindane, Chlordane, Toxaphene, Aldrin, Dieldrin, etc.
HT-70%	Fine Organics, Inc.	Higher alkenyl dimethyl ethyl ammonium bromide	Germicide	Solid	70%	Cationic	Composition, 70% quaternary ammonium salt and 30% sodium carbonate; use in water treatment for slime removal, etc.
Hum (retail)	Lever Brothers Co.		Detergent	Liquid			Controlled sudsing, all-purpose detergent

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Hyamine 10-X	Rohm & Haas Co.	Di-isobutyl cresoxy ethoxy ethyl dimethyl benzyl ammonium chloride	Germicide	Crystal		Cationic	Disinfectant and sanitizer in restaurant and pharmaceutical fields, etc.; uses: same as for "Hyamine 1622"
Hyamine 1622	Rohm & Haas Co.	Di-isobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride	Germicide	Crystal		Cationic	Disinfectant and sanitizer in restaurant and pharmaceutical fields; other applications: pigment dispersions, oil flotation, textile treatment (where they are substantive to cellulose), anti-static agent, cationic latices; also in liquid form — 50%
Hyamine 2389	Rohm & Haas Co.	Alkyl (C_8-C_{18}) tolyl methyl trimethyl ammonium chlorides	Germicide	Liquid	50%	Cationic	Disinfectant and sanitizer in restaurant and pharmaceutical fields, etc.; uses: same as for "Hyamine 1622"
Hyamine 2744	Rohm & Haas Co.	Di-isobutyl phenoxy ethoxy ethyl dimethyl parachlorobenzyl ammonium chloride	Germicide	Crystal		Cationic	Especially for use in tablets and powdered detergents; high activity in hard water
Hyamine 3500	Rohm & Haas Co.	Alkyl (C_{12}-C_{16}) dimethyl benzyl ammonium chloride	Germicide	Liquid	50%	Cationic	High activity in hard water
Hydroterg-B	Hydrocarbon Chemicals, Inc.	A fatty alkylolamide	Detergent Wetting	Liquid	100%	Nonionic	Useful as a detergent in shampoos, shaving creams, hand cleansers
Hydroterg-C	Hydrocarbon Chemicals, Inc.	A fatty acid sulphonate with nonionic additives	Detergent	Liquid	60%	Anionic	All purpose detergent for industrial cleaning
Hymolon K	Hart Products Corp.	Fatty acid amine condensate	Detergent Emulsifier	Liquid	100%	Nonionic	Textile, wool scouring agent
Hyonic	Nopco Chemical Co.	Alkyl polyoxyethylene alcohol	Detergent Wetting	Liquid	75%	Nonionic	Wool, cotton and hard surface detergent, wetting agent
Hyonic FA 20 FA 40	Nopco Chemical Co.	Fatty alkylolamide	Detergent	Liquid	100%	Nonionic	Detergent base; low viscosity-dilution curve; excellent with alkaline builders; "FA-40" gives high viscosity 10 to 25% solutions; very good foam with alkaline builders
Hyonic FA 75	Nopco Chemical Co.	Modified fatty alkylolamide	Detergent	Liquid	70%	Anionic	Detergent with great solubility in salt and builder solutions; excellent foam, hard water resistance, and gives low viscosity-dilution curve
Hyonic FS	Nopco Chemical Co.	Lauric acid alkylolamide	Foam Stabilizer	Liquid	100%	Nonionic	A clear liquid foam stabilizer and detergent synergist for liquid blends
Hyonic PE 225	Nopco Chemical Co.	Polyoxyethylene ester	Detergent	Liquid	100%	Nonionic	Low foaming detergent for textiles and automatic laundry formulation
Hyonic PE 250	Nopco Chemical Co.	Alkyl aryl polyether alcohol	Detergent Wetting	Liquid	100%	Nonionic	Detergent for fibrous and hard surface materials; excellent wetting, emulsifying power and calcium resistance
Hyonic PE 275	Nopco Chemical Co.	Modified alkyl aryl polyether alcohol	Detergent	Liquid	100%	Nonionic	Excellent detergent for all textile fibers; non-corrosive to containers or machinery
Hytergen BM	Hart Products Corp.	Modified alcohol sulfate	Detergent Wetting Emulsifier	Paste	20%	Anionic	Textile; scouring agent; soaping off prints, etc.
Hytergen GL #10	Hart Products Corp.	Sulfated fatty amide	Detergent Wetting	Liquid		Anionic	A water soluble salt free general scouring agent
Hytergen MV	Hart Products Corp.	Sulfated fatty acid amide	Detergent	Powder		Anionic	Water soluble; textile; for print, rayon and cotton scouring
Idonyx	Onyx Oil & Chemical Co.	An iodophor	Germicide	Powder		Nonionic	A product sold to manufacturers only for compounding detergent sanitizers
Igepal CA-630 CA-730	Antara Chemicals, a division of General Aniline & Film Corp.	Iso-octyl phenoxy polyoxyethylene ethanol	Detergent Wetting Emulsifier Dispersant	Liquid	100%	Nonionic	Surfactant for general use as detergent, etc., in textile, leather, and paper trades; soluble in water, aromatic petroleum solvents, ethylene glycol; insoluble in kerosene

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Igepal CO-210	Antara Chemicals, a division of General Aniline & Film Corp.	Nonyl phenoxy polyoxyethylene ethanol	Defoamer Stabilizer Intermediate	Liquid	100%	Nonionic	A defoamer in high concentrations (10-20%); a foam stabilizer in low concentrations; emulsion stabilizer; intermediate for products similar to those derived from fatty alcohols
Igepal CO-430 530 610 630 710 730	Antara Chemicals, a division of General Aniline & Film Corp.	Nonyl phenoxy polyoxyethylene ethanol	Detergent Wetting Emulsifier Dispersant	Liquid	100%	Nonionic	A versatile series of surfactants produced by the reaction of nonyl phenol with ethylene oxide. The higher numbered "Igepals" are more water soluble while the lower numbered products are more oil soluble. Uses: agricultural formulations, compounding, cosmetics, dairy, leather, metals, paper, and many other industries.
Igepal CO-633	Antara Chemicals, a division of General Aniline & Film Corp.	Nonyl phenoxy polyoxyethylene ethanol	Detergent Wetting Dispersant	Liquid	33%	Nonionic	A 33% aqueous solution of "Igepal CO-630"
Igepal CO-850 880 890 970 990	Antara Chemicals, a division of General Aniline & Film Corp.	Nonyl phenoxy polyoxyethylene ethanol	Emulsifier-Stabilizer	Wax	100%	Nonionic	Highly water soluble, of interest in emulsion polymerization, latex stabliization and in processes which require surfactants that are stable to high concentrations of electrolytes and to high temperatures
Igepal CO-887	Antara Chemicals, a division of General Aniline & Film Corp.	Nonyl phenoxy polyoxyethylene ethanol	Emulsifier	Liquid	70%	Nonionic	A 70% aqueous solution of "CO-880" — a liquid form of "CO-880"
Igepal DM-430 710	Antara Chemicals, a division of General Aniline & Film Corp.	Higher alkyl phenoxy polyoxyethylene ethanol	Emulsifier Stabilizer Solubilizer Detergent	Liquid	100%	Nonionic	Emulsifier of agricultural chemicals and non-polar solvents; used in emulsion aerosols and in emulsion polymerization; of interest in household detergent formulations and in the textile industry as a detergent and antistatic finish
Igepal DM-730 880	Antara Chemicals, a division of General Aniline & Film Corp.	Higher alkyl phenoxy polyoxyethylene ethanol	Detergent Emulsifier Stabilizer Solubilizer	Wax	100%	Nonionic	Highly water soluble — low foaming; of interest for industrial and household laundry formulations, emulsion polymerization, latex stabilization, emulsification of waxes and fatty acids, and as solubilizers
Igepal RC-520 630	Antara Chemicals, a division of General Aniline & Film Corp.	Higher alkyl phenoxy polyoxyethylene ethanol	Detergent Emulsifier Wetting	Liquid	100%	Nonionic	For aerosol emulsions, agricultural and insecticide emulsions, dry cleaning "soaps," emulsion polymerization, emulsion-type acid bowl cleaners, anti-dusting compounds, etc.
Igepal RC-760 890	Antara Chemicals, a division of General Aniline & Film Corp.	Higher alkyl phenoxy polyoxyethylene ethanol	Detergent Emulsifier Wetting Emulsifier	Wax	100%	Nonionic	Of interest in emulsification of fatty acids, emulsion polymerization, and formulation of high-temperature acid cleaners
Igepon AC-78	Antara Chemicals, a division of General Aniline & Film Corp.	Coconut acid ester of sodium isethionate	Detergent Dispersant Foaming Wetting	Powder	85%	Anionic	Good foaming and lathering properties; used in cosmetics, dentifrices, shampoos, and detergent bars; fine-fabric detergent;
Igepon AP-75	Antara Chemicals, a division of General Aniline & Film Corp.	Oleic acid ester of sodium isethionate	Detergent	Powder	51%	Anionic	Less concentrated form of "Igepon AP-78"; used as textile detergent
Igepon AP-78	Antara Chemicals, a division of General Aniline & Film Corp.	Oleic acid ester of sodium isethionate	Detergent	Powder	85%	Anionic	Wetting and dispersing agent in insecticide and herbicide wettable powders; detergent base for household and industrial cleaners
Igepon CN-42	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-cyclohexyl-N-palmitoyl taurate	Detergent Dispersant Wetting	Paste	20%	Anionic	Low foaming detergent for formulating mechanical dishwashing compound and industrial cleaners
Igepon T-33 T-43 T-51 T-73 T-77	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-methyl-N-oleoyl taurate	Detergent Wetting Dispersant Emulsifier Foaming	Liquid Slurry Gel Powder Flake	32% 33% 14% 28% 67%	Anionic	The "Igepon T" brands are used in many industries-agriculture, cotton processing, cosmetics, detergent formulating, leather, etc. "T-77" is of value as a wetting and dispersing agent for agricultural wettable powders.

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Igepon TC-42	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-methyl-N-"coconut oil acid" taurate	Detergent Foaming Dispersant	Liquid	22%	Anionic	Detergent base, foam booster, or solubilizing agent in packaged detergents, shampoos, and dentifrices
Igepon TE-42	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-methyl-N-"tallow acid" taurate	Detergent Dispersant Wetting	Liquid	24%	Anionic	Used alone or with builders for textile washing purposes, commercial laundering or hard surface cleaning
Igepon TK-32	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-methyl-N-"tall oil acid" taurate	Dispersant	Liquid	25%	Anionic	Precipitation inhibitor for organic and inorganic salts of barium, calcium, strontium; scale preventive
Igepon TN-74	Antara Chemicals, a division of General Aniline & Film Corp.	Sodium N-methyl-N-acyl taurate	Detergent Wetting Dispersant	Powder	44%	Anionic	Soluble in water; stable to acid and alkali; used in paper mill felt washing, leather degreasing, and textile scouring; herbicide and insecticide dispersant
IN-181 Paste 256 826	E. I. du Pont de Nemours & Co., Grasselli Chemicals Dept.		Wetting				This is a series of wetting agents for use in agricultural products and sold only to processors. They represent renamed products offered through other channels. See "Duponol" and "Alkanol"
IN-531 2503	E. I. du Pont de Nemours & Co., Grasselli Chemicals Dept.		Emulsifier				These are emulsifying agents offered to processors in the agricultural field. They represent renamed products through other channels. For example, "IN-2503" is a fatty alcohol sulfate
Intrasan C-80	Reilly-Whiteman-Walton Co.	Fatty alkanolamide	Detergent	Liquid	80%	Nonionic	A liquid industrial cleaner for metal surfaces, etc.
Insidol	Arkansas Co.	Sulfo-dicarboxylic acid ester	Wetting	Liquid	25%	Anionic	A textile penetrant for all wet processing operations
Institution X Extra Granules	Procter & Gamble Co.	Essentially sodium alkyl sulfate	Detergent	Granules		Anionic	Built heavy duty type detergent and cleaner for institutional maintenance
Intexide CF-6	Intex Chemical Corp.	Coconut fatty acid diethanolamide	Detergent Foamer	Liquid	65%*	Nonionic	The "Intexides" are principally foam builders and foam stabilizers, auxiliary detergents, viscosity builders and antistatic agents. They are useful in degreasing compounds, floor polishes, window cleaners, heavy duty liquid detergents, etc. *Per cent concentration of "Intexides" given is based on amide content.
Intexide CF-8	Intex Chemical Corp.	Coconut fatty acid diethanolamide plus glycerine	Detergent Foamer	Liquid	80%*	Nonionic	
Intexide CF-8A	Intex Chemical Corp.	Coconut fatty acid diethanolamide	Detergent Foamer	Liquid	90%*	Nonionic	
Intexide FM-6	Intex Chemical Corp.	A mixed fatty acid diethanolamide	Foamer Emulsifier	Liquid	60%*	Nonionic	
Intexide HL-6	Intex Chemical Corp.	A high purity lauric acid diethanolamide	Foamer Emulsifier	Liquid	65%*	Nonionic	
Intexide L-9	Intex Chemical Corp.	High purity lauric acid diethanolamide	Detergent Foamer	Liquid	90%*	Nonionic	
Intexide LMP-9	Intex Chemical Corp.	Mixed lauric-myristic acid mono-isopropanolamide	Detergent Foamer	Liquid	90%*	Nonionic	
Intexide S-2	Intex Chemical Corp.	Stearic acid diethanolamide	Emulsifier	Paste	20%*	Nonionic	
Intexide S-6	Intex Chemical Corp.	Stearic acid diethanolamide	Emulsifier	Solid	60%*	Nonionic	
Intexol AA3	Intex Chemical Corp.	Sodium dodecylbenzene sulfonate	Detergent	Bead Paste	35%	Anionic	Industrial cleaning compounds; dishwashing detergents
Intexol AA4	Intex Chemical Corp.	Sodium dodecylbenzene sulfonate	Detergent	Flake Powder	40%	Anionic	Laundry detergents
Intexol AA8	Intex Chemical Corp.	Sodium dodecylbenzene sulfonate	Detergent	Flake Powder	85%	Anionic	General industrial cleaners, cosmetics, etc.
Intexol AA9	Intex Chemical Corp.	Sodium dodecylbenzene sulfonate	Detergent	Flake Powder	96%	Anionic	General industrial cleaners, cosmetics, etc.
Intexol AA-10 AAS-10	Intex Chemical Corp.	Dodecylbenzene sulfonic acid	Detergent Base	Liquid	95% 91%	Anionic	For compounders, etc.
Intexol AAP9	Intex Chemical Corp.	Isopropylamine dodecylbenzene sulfonate	Emulsifier	Liquid	93%	Anionic	Solvent emulsifier
Intexol AAT6	Intex Chemical Corp.	Triethanolamine dodecylbenzene sulfonate	Detergent	Liquid	60%	Anionic	Laundry detergents

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Intexol L-3	Intex Chemical Corp.	Sodium lauryl sulfate	Detergent	Paste	20%	Anionic	Household and industrial cleaners
Intexol L-9 Pdr. L-9 Cryst.	Intex Chemical Corp.	Sodium lauryl sulfate	Detergent	Powder Powder	90% 90%	Anionic	General detergent for pharmaceutical preparations, etc.
Intexol LM-3	Intex Chemical Corp.	Ammonium lauryl sulfate	Detergent	Liquid	20%	Anionic	Neutral household and industrial cleaners
Intexol LTE-4	Intex Chemical Corp.	Triethanolamine lauryl sulfate	Detergent	Liquid	44%	Anionic	Shampoos, floor cleaners, metal cleaners
Intexol LDE-4	Intex Chemical Corp.	Diethanolamine lauryl sulfate	Detergent	Liquid	40%	Anionic	Shampoos, floor cleaners, metal cleaners
Intexol LMG-3	Intex Chemical Corp.	Magnesium lauryl sulfate	Dispersant Detergent	Liquid	30%	Anionic	Rug cleaners
Intexol NPN-6	Intex Chemical Corp.	Ammonium nonylphenol polyglycol ether sulfate	Detergent	Liquid	60%	Anionic	Neutral detergent formulations as car washing cleaners
Intexol OSS-5	Intex Chemical Corp.	Sodium dioctyl sulfosuccinate	Wetting	Liquid	50%	Anionic	Textile and industrial applications
Intexol TD-3	Intex Chemical Corp.	Sodium tridecyl glycol ether sulfate	Detergent Foamer	Liquid	30%	Anionic	Foaming dishwashing compounds
Intexol X-3	Intex Chemical Corp.	Sodium xylene sulfonate	Solubilizer	Liquid	40%	Anionic	Solubilizer
Intexon NP-1	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Foam Depressant	Liquid	100%	Nonionic	Foam depresant
Intexon NP-2	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Emulsifier	Liquid	100%	Nonionic	Oil soluble emulsifier, dry cleaning additive
Intexon NP-3	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Detergent Wetting	Liquid	100%	Nonionic	All-purpose detergent and wetting agent
Intexon NP-4	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Detergent	Liquid	100%	Nonionic	Detergent formulations, leather degreasing, hard surface cleaners
Intexon NP-5	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Detergent Emulsifier Dispersant	Wax	100%	Nonionic	High temperature detergent, for detergent sanitizers, insecticide emulsification
Intexon NP-10	Intex Chemical Corp.	Nonylphenol polyglycol ether alcohol	Emulsifier Dispersant	Wax	100%	Nonionic	An emulsifier for mineral oil, fatty acids, waxes. A dyestuff dispersant.
Intexon OP-3	Intex Chemical Corp.	Octyl phenol polyglycol ether alcohol	Detergent Wetting	Liquid	100%	Nonionic	Detergent sanitizers, hard surface cleaners.
Intexon T-7	Intex Chemical Corp.	Polyglycol ether condensate of a tallow alcohol	Emulsifier	Wax	100%	Nonionic	Wool degreasing. Textile dyeing auxiliary. Latex emulsifier
Intexsan ABM-50	Intex Chemical Corp.	Dodecylbenzyl trimethyl ammonium chloride	Germicide	Liquid	50%	Cationic	Useful in the formulation of detergent sanitizers, for food processing plants, public institutions, doctors' instruments, etc., also for slime control in swimming pools, disinfection of poultry drinking water, storage bins, industrial wastes, etc.
Intexsan LB-50	Intex Chemical Corp.	Alkyl dimethyl benzyl ammonium chloride	Germicide	Liquid	50%	Cationic	
Intexsan LCB-60	Intex Chemical Corp.	Alkyl dimethyl dichlorobenzyl ammonium chloride	Germicide	Liquid	60%	Cationic	
Intexsan LQ	Intex Chemical Corp	Alkyl dimethyl isoquinolinium ammonium bromide	Germicide	Liquid	20%	Cationic	
Intexsan MB-50	Intex Chemical Corp.	Alkyl dimethyl benzyl ammonium chloride	Germicide	Liquid	50%	Cationic	
Intexsan OE-75	Intex Chemical Corp.	Alkenyl dimethyl ethyl ammonium bromide	Germicide	Paste	75%	Cationic	
Intracol —OA —O —S —M	Synthetic Chemicals, Inc.	Long chain fatty acid amide containing multiple amine groups	Wetting Dispersant Emulsifier	Paste		Cationic	Textiles, rubber, pigments, etc. "Intracol OA" and "S" are water soluble, "Intracol O" and "M" are oil soluble; effective as an emulsifier for fatty acids
Intral AE	Synthetic Chemicals, Inc.		Wetting	Liquid	100%	Nonionic	
Intral 229 384	Synthetic Chemicals, Inc.	An unsaturated long chain fatty acid ester containing multiple ether linkages	Wetting Emulsifier	Liquid		Nonionic	Water-soluble; active in highly alkaline solutions
Intramine WK-33 —Y	Synthetic Chemicals, Inc.	Sodium salt of sulfated lauryl and myristyl colamide	Detergent Wetting	Powder		Anionic	Water-soluble; used in textile, metal cleaning, rubber, shampoos

(To Be Continued)

Coneybear Named President-elect at Cosmetic Chemists Meeting

SAVERY F. CONEYBEAR of Colgate-Palmolive Co., New York, was chosen as president-elect to head the Society of Cosmetic Chemists in 1959 at the group's 13th annual meeting held at the Commodore Hotel, New York, Dec. 10. James H. Baker, head of Gar-Baker Laboratories, Inc., New York, was inducted as president for 1958. John H. Draize of the U. S. Food and Drug Administration received the society's 10th Medal Award at a special dinner.

The all day meeting featured a technical program consisting of seven papers. "Aerosol Emulsion Systems" was the title of a contribution by Paul A. Sanders, E. I. du Pont de Nemours & Co., Wilmington, Del. Development of aqueous aerosols which can be dispensed in spray form has been difficult because fluorinated hydrocarbon propellants are incompatible with water. Attempts to overcome this problem involved the use of hydrocarbon propellants and the investigation of oil-in-water systems, water-in-oil emulsions, three phase systems, etc. Pressure dispensing of aqueous products in the form of foam or foamy sprays is far from new. Familiar examples are a window cleaner containing five per cent propellant and shaving lather formulated with 10 per cent propellant and 90 per cent aqueous soap solution.

Water-in-oil systems were found to be most suitable for aerosol dispensing in spray form. Among oil soluble surface active agents screened for the purpose the polyglycol esters of fatty acids were found to exhibit the most desirable characteristics, the chief criterion of suitability being separation time. The propellants tested included "Freons" 12, 114, 11, and 113. Best emulsions were obtained with "Freon" 11 and the next best with 113. Combinations of propellants 11 and 12 were found most advantageous. Water was dispersed in the propellant and the characteristics of the spray were found to depend upon the ratio of propellant to water. A fine spray was formed with 80 parts of propellant to 20 parts of water, a very fine spray with 90 parts propellant and 10 parts of water, a foam approaching spray characteristics with 40 parts propellant and 60 parts water.

The spray characteristics of a system incorporating "Freon" 12, odorless mineral spirits and water were found to vary with the respective ratios of the three factors. In addition to the type of propellant used, propellant/water ratio, and the presence of auxiliary solvents, the type of valve is an important factor influencing the characteristics of an aqueous spray.

Viscosity of an aqueous aerosol increases with the water content up to about a 60 per cent water content. Somewhere between 60 and 80 per cent water content the water-in-oil emulsion is reversed into an oil-in-water system and the product is changed from spray to foam.

Water content and valve design probably determine the particle size. Flammability of the final product depends largely on the amount of solvent present, on particle size, and a number of other considerations.

Savery F. Coneybear

Of all systems tested the most desirable storage properties were exhibited by a spray incorporating 60 per cent "Freon" 12, 20 per cent odorless mineral spirits, and 20 per cent water.

Andrew J. Gard of Dow Chemical Co., Midland, Mich., offered a presentation entitled "Some Aspects of Chelation in Cosmetic Products." He dealt with the application of chelating agents to a number of problems in the manufacture of shampoos, detergent bars, and soaps, and a number of cosmetic specialty items. Among newer sequestrants discussed by Mr. Gard was diethylene-triaminepenta-acetic acid. He outlined a time-saving method for the laboratory screening of chelating agents for specific uses. He stressed that in any aqueous system the chelating agent should always be added prior to other ingredients. In many instances it has been found advantageous to use the free fatty acid which can then be neutralized with any desired base.

Standardized methods of testing for the functional efficiency of dermatological products is one of the industry's growing needs according to a paper by E. Allen Newcomb, Malmstrom Chemical Corp., Brooklyn, N. Y., entitled "Evaluating Liquid Lanolin—a Case Study." A wide range of ingredients is at the disposal of the modern cosmetic chemist. While it is relatively easy to determine the purity and safety of the novel compounds formulated from the new or modified raw materials, techniques for the measurement of their functional efficiency are sadly lacking. Using liquid lanolin as an example the speaker outlined product evaluation by means of panel testing procedures, laboratory and clinical experiments, and physiochemical studies.

"Factors to be Considered in the Preservation of Cosmetic

(*Turn to Page* 64)

Emulsions," by L. F. Tice and M. Barr, Philadelphia College of Pharmacy and Science, stressed the importance of stringent cleanliness in containers, caps, and liners, equipment and the plant at large. He gave special attention to the difficulties in preservation introduced by the advent of nonionic surfactants in cosmetic emulsions. Enzymes released by microorganisms during the process of their growth can split certain ester-type surfactant molecules, disassociating the lipophilic and hydrophilic portions, eliminating the surface active properties, and destroying emulsion stability. As a further complication, certain time honored preservatives, such as parahydroxybenzoic acid have been found to complex with these non-ionics diminishing the preservatives' effective concentration below the critical level. Speaking on the self bacteriostasis of certain combinations, Dr. Tice mentioned propylene glycol and ethylene glycol, the quaternaries, and a number of other compounds as exhibiting such properties.

"The Role of Survey Research in New Product Development" was outlined in a paper of that title by J. Stevens Stock, J. Stevens Stock Research Co., New York. To give the public what it wants is not enough according to Mr. Stock. The public can only want what it is familiar with. It must be given more than it wants, yet nothing so advanced that it cannot be educated to want it.

Survey research must be preceded by pre-research or "hunch hunting." The survey research method of interviewing people serves to adjust the new products to the public's acceptance. According to Mr. Stock the public is quite insensitive to many improvements in products unless they are very dramatic. What sells a product, he said, is not only what it is intrinsically (chemically and physically) but also what it is psychologically. Every product must play a role on the market stage. If this role is appealing, the product will sell.

Other papers presented at the meeting included "The Lipid Assay of the Skin," by Howard T. Worne, Erlton, Haddonfield, N. J.; and "Studies on Enzymes in the Skin: Their Value as a Research Tool," by Robert D. Griesemer, Massachusetts General Hospital, Boston. Dr. Griesemer envisaged the development of a simple laboratory enzyme screening test to measure the capacity of new detergents for skin irritation. It is known that detergents thicken the living epidermis; it would be interesting to know what happens to the activity of the enzymes of the skin during this process. It is possible that the more irritating a detergent is the greater will be the alteration in enzyme activity.

At luncheon the newly elected officers for 1958 were introduced by Sabbat J. Strianse, retiring president of the society. Having presented Mr. Baker and Mr. Coneybear, he announced the reelection of Robert A. Kramer, Evans Research and Development Corp., as secretary and Walter A. Taylor, Chesebrough-Pond's, Inc., as treasurer. Chosen as directors from a slate of six candidates were Paul G. I. Lauffer, Northam Warren Co.; and Sophie L. Plechner, Carter Products, Inc.

Mr. Strianse becomes chairman of the executive committee, other members of which include George G. Kolar, Kenneth L. Russell, Donald H. Powers, and Paul G. I. Lauffer, all past presidents of the society.

The meeting was followed by a cocktail party and Medal Award Dinner at which Mr. Strianse presented Dr. Draize with the society's 1957 medal award for outstanding contributions to cosmetic science. Tenth recipient of this honor, Dr. Draize is chief of the skin toxicity branch of the Division of Pharmacology, U. S. Food and Drug Administration. He has made many and outstanding contributions towards establishment of adequate tests and in the development of new test methods to ensure the safety of new personal products.

Synthetic Geraniol

The availability for the first time of synthetic geraniol and in commercial quantities has just been announced by the Southern Chemical Division of Glidden Co. in Jacksonville, Fla. According to W. David Stallcup, vice-president in charge of the division, the product is synthesized from turpentine by entirely new methods developed in Glidden's laboratories. The economic synthesis of geraniol, Dr. Stallcup said, is the first announced result of a research program initiated twelve years ago to provide a range of terpene alcohols and related aromatics from raw materials entirely of domestic origin.

Glidden's synthetic geraniol has a total minimum alcohol content of 98 per cent. While incorporating the alcohols associated with geraniol derived from citronella oil, the synthetic product is free from terpenes and sesquiterpenes. Prices are said to be competitive.

At the same time Glidden announced an arrangement with A. Boake, Roberts & Co., London, England, for the manufacture of geraniol in Europe and for cooperation in the development of new aromatic products.

Detailed information concerning "Geraniol Standard" is available from the Glidden Co., Southern Chemical Division, Box 389, Jacksonville 1, Fla.

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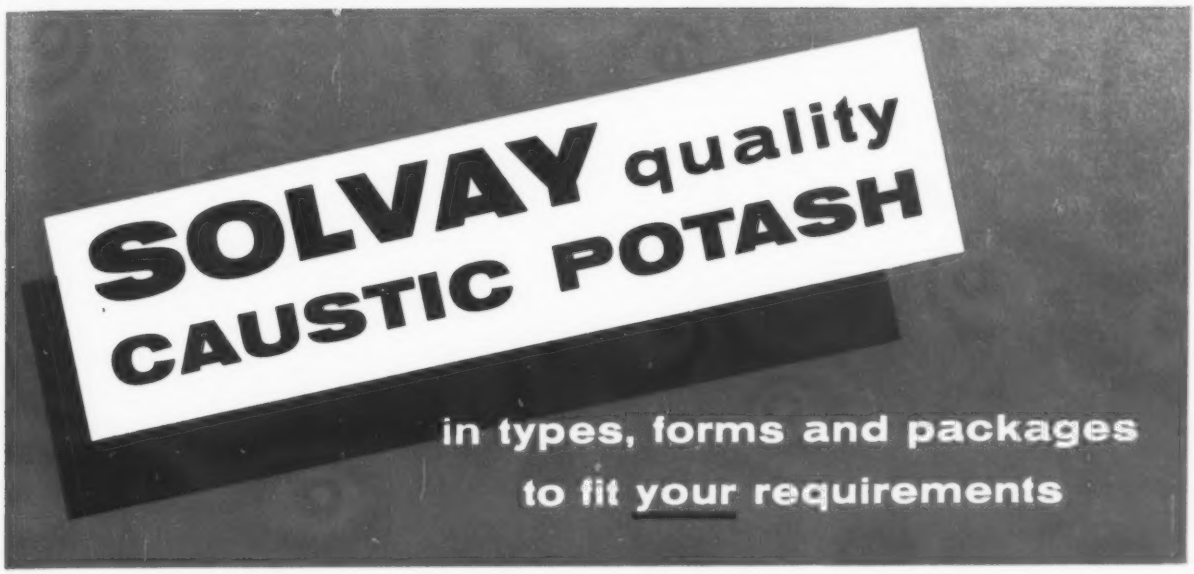
Files Fair Trade Suit

Warner - Lambert Pharmaceutical Co., Morris Plains, N. J., has filed a fair trade suit against Atlantic Superama, Inc., Neptune, N. J., charging that Superama violated fair trade minimums on several toiletry items produced by its Lambert-Hudnut Division. The violations occurred at Superama's New Shrewsbury, N. J., outlet, according to Warner - Lambert. Products that were sold below legal fair trade minimums included "Richard Hudnut" creme shampoo and "Listerine" tooth paste, it was reported by the pharmaceutical firm.



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The dry product is produced in flake, small flake, walnut and solid forms, all of which are unusually low in iron, light in color and produce solutions of exceptional clarity. It is available in steel drums as follows:

Flake, 90-92%	**350 lbs. net**	(12-, 18-inch caps and full open head)
	100 lbs. net	
Small Flake, 90-92%	**400 lbs. net**	(12-, 18-inch caps and full open head)
	100 lbs. net	
Walnut, 90-92%	**200 lbs. net**	
	100 lbs. net	
Solid, 90-92%	**675 lbs. net**	
	100 lbs. net	

SOLVAY Technical Caustic Potash in liquid form is available in 45% strength in both returnable and non-returnable 55-gallon steel drums, 660 lbs. net, and in 45-52% strength in specially-lined tank cars of 4,000, 6,000, 8,000 and 10,000 gallons capacity.

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SOLVAY is the pioneer producer of this super-quality grade of commercial caustic potash. This material, which set a new standard for the industry for whiteness and purity, contains only trace quantities of metals and chloride, and is chlorate-free. It is available in both flake and liquid forms in the following packages:

Flake, 90-92%	**Steel drums—350 lbs. net**	(15-inch cap and full open head)
	100 lbs. net	
Liquor, 45%	**Returnable 55-gal.—660 lbs. net**	
	Non-returnable 55-gal.—660 lbs. net	
Liquor, 45-52%	**Specially-lined tank cars—4,000, 6,000, 8,000 and 10,000 gallons**	

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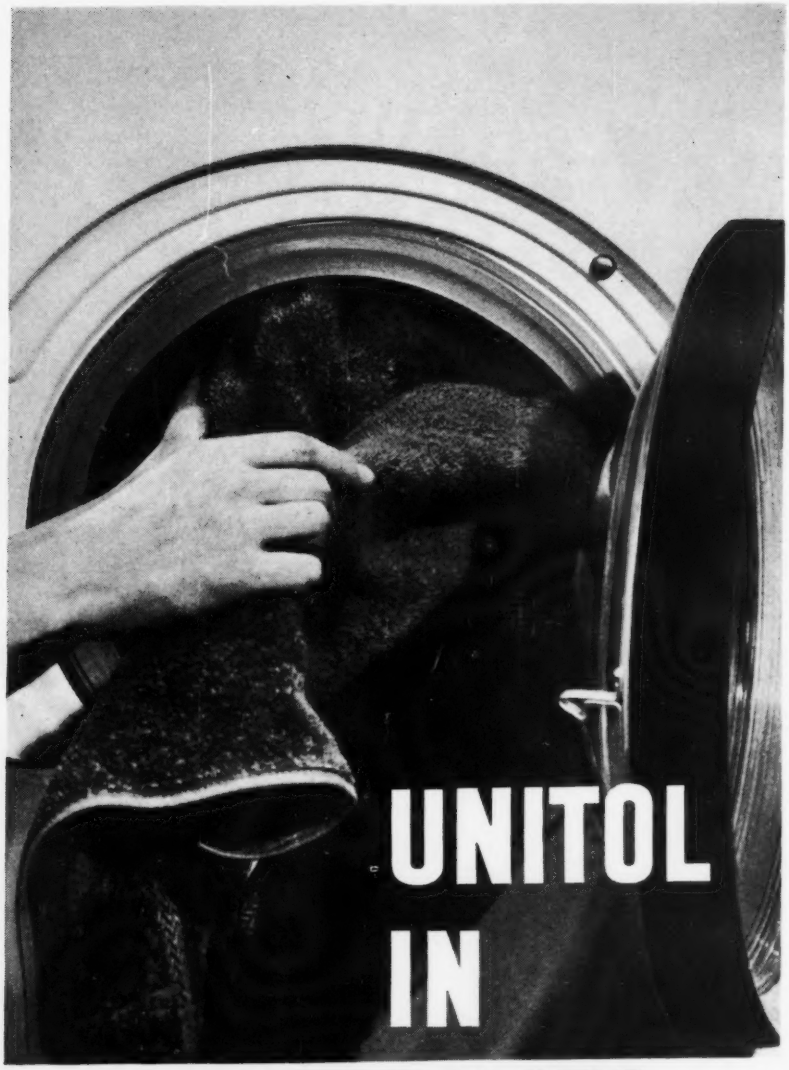
Ammonium Bicarbonate • Monochlorobenzene • Cleaning Compounds • Ortho-dichlorobenzene • Para-dichlorobenzene
Methyl Chloride • Carbon Tetrachloride



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AOCS Short Course

The American Oil Chemists' Society will hold its 1958 short course on soaps and syndets at the Princeton Inn, Princeton, N. J., July 14 through 18. Foster Dee Snell of Foster D. Snell, Inc., New York, will be general chairman.

W. A. Peterson, Colgate-Palmolive Co., New York, will be chairman of the first session, Monday, July 14. Subjects will include alkylate, fatty alcohols, sulfonation and sulfation, theoretical and practical aspects, and a dinner topic dealing with the changing scene in soaps and syndets.

Chairman on Tuesday, July 15, will be J. L. Hale, Swift & Co., Newark, N. J. The following topics will be studied: ethylene oxide condensation, amine condensates, builders and other adjuncts of syndets, fluorescent agents, and a general topic on syndets in sewage.

On the third day, Wednesday, July 16, Donald Price, New York consultant, will preside. The program will be concerned with specialty syndet structures and types, application of specialty syndet structures, glycerine production, and glycerine application. Dermatological aspects of soaps and syndets will furnish the dinner topic.

With Morris Mattikow of Refining Uninc., New York, in the chair. The fourth session (Thursday, July 17) will discuss saponification with emphasis on newer methods. The dinner topic will be economics of soaps and syndets.

On the final day, Friday, July 18, J. C. Harris of Monsanto Chemical Co., Dayton, O., will be chairman. Subjects will include textile uses, general detergency, evaluation in metal processing, and general properties.

The American Oil Chemists' Society at 35 East Wacker Drive, Chicago 1, will answer inquiries regarding the short course. The fee has not yet been set.

At the same time AOCS announced a symposium on tall oil as a special feature of its spring meeting to be held in Memphis, April 21-23.

Chemical Specialties . . .

Aerosols
Automotive products
Bleaches
Bowl cleaners
Carpet cleaners
Cleaning fluids
Deodorants
Disinfectants
Floor Waxes
and other floor products
Glass cleaners
Household ammonia
Insecticides
Mildew compounds
Moth specialties
Polishes
Repellents
Rodenticides
Sanitizers
Skin protectants
Stock sprays
Sweeping compounds
Wax strippers
Weed chemicals
and other
Chemical Specialties

Great things are expected of pharmaceutical aerosols, such as Riker "Medihaler," which features metered valve to give measured dosage. Convenience factor of aerosol dispensed medicinals is also expected to expand market. See article on page 86.
Du Pont Magazine photo

Leaders . . .

FOR over 40 years, leaders in the chemical specialties industry, large and small, have been active in CSMA affairs. They find that active participation in their trade association keeps them closely and promptly informed on matters of deep interest and importance. They find that exchange of views in open meetings can aid in solving many of their own individual manufacturing and marketing problems. They find that the prompt and complete bulletin service of CSMA keeps them abreast of matters vital to their business—on what lies ahead and what is being done about it.

If you are in the field of disinfectants, deodorants, insecticides, floor waxes, polishes, soap and detergent specialties, aerosol products, automotive chemicals, or other chemical specialties, it could pay you to look into the advantages of membership in the CSMA for your firm. Can we send you further information?

H. W. Hamilton, *Secretary.*

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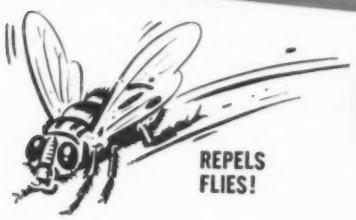

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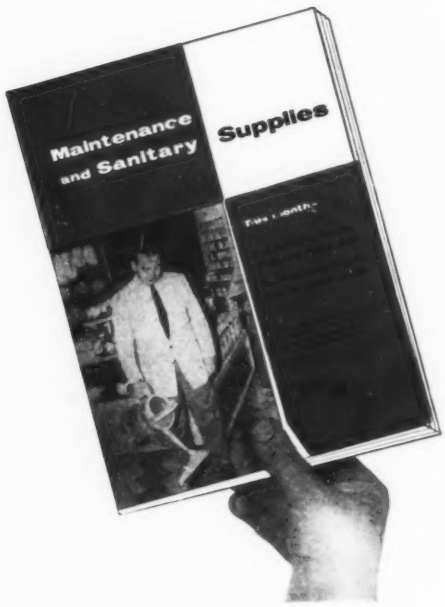

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Laboratory and field tests indicate that MGK Repellent 326 provides up to 4 days of effective residual repellency for flies on cattle and up to 10 days residual repellency when used in a barn or premise spray. MGK Repellent 326 is non-toxic and safe when used as directed and has been registered with U.S.D.A. under the requirements of the Miller Amendment.

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CSMA Meeting...

IN A tropical setting paradoxically plagued with temperatures just above freezing, chemical specialties manufacturers huddled at the Hollywood Beach Hotel, just north of Miami, at Hollywood, Fla., Dec. 9-12, for the 44th annual meeting of the Chemical Specialties Manufacturers Association.

Almost all of the six divisions of which CSMA is composed heard of new developments in their respective fields during individual sessions:

AEROSOL DIVISION: Was told of an improved method of loading aerosol containers which offers definite advantages over presently used filling techniques. This publicity-conscious division also saw for the first time the sound-color motion picture film, "The Magic Button", which also made its public debut on a TV showing over a Miami station during the meeting. The film is one of the major efforts of the division's public relations program which got under way earlier in 1957.

AUTOMOTIVE DIVISION: Released two market surveys, one on automobile wax and polish production in 1956, the other dealing with output of automobile cooling system chemicals (exclusive of antifreeze) in '56. Inaccuracies in reporting, which were discovered after the surveys were released at the meeing, resulted in erroneous totals and caused the surveys to be withdrawn. New ones will be issued shortly. Two papers on marketing of automotive specialties, including one on antifreeze were among the highlights of the two sessions of the Automotive Division.

DISINFECTANT AND SANITIZERS DIVISION: Heard a review of current and proposed disinfectant labeling requirements by R. L. Ackerly of Cummings, Sellers, Reeves and Conner, Washington, D. C., legal counsel for CSMA. Method of operation of a disinfectant was described in a paper by S. S. Block of the University of Florida.

INSECTICIDE DIVISION: Effectiveness of new synergist sesoxane with methoxychlor especially in controlling house flies was of top interest at this divisional meeting which also was told of pesticidal possibilities in Florida.

SOAP, DETERGENTS AND SANITARY CHEMICAL PRODUCTS DIVISION: New method for quantitative analysis of surfactants with a nonionic reagent was revealed in a symposium on analytical methods for surfactants.

WAXES AND FLOOR FINISHES DIVISION: Review of newer types of raw materials used in floor finishes discussed and a new method of wear evaluation for floor finishes using radioisotopes was disclosed.

Registration for the convention – probably the first annual meeting in the history of CSMA to be held at a resort – reached 811, according to the official count. The Hollywood gathering, the only resort meeting since 1948, marked

CSMA treasurer, Peter C. Reilly, Reilly Tar & Chemical Corp., Indianapolis, with H. W. Hamilton, CSMA secretary at group's 44th annual meeting in Hollywood, Fla.

James E. Ferris, Hooker Electrochemical Co., newly elected president of CSMA.

Aerosols are in the news during CSMA convention in Hollywood as three of the Aerosol Division's most active members make radio and TV appearances. Frederick G. Lodes of Lodes Aerosol Consultants, Inc., New York, in top photo discusses with Mollie Turner how aerosols work during 12-minute interview over Station WPST-TV, Channel 10, Miami. The division's new film, "The Magic Button", made its public debut during the program. In center picture H. R. Shepherd, head of Aerosol Techniques, Inc., Bridgeport, is shown being interviewed by Billie O'Day on her morning housewife's show over radio station WCKR, Miami NBC outlet on Dec. 10. Roger Conklin, spot announcer for the program assists Miss O'Day in questioning her guest. Charles E. Beach of John C. Stalfort & Sons, Inc., Baltimore, is shown in bottom photo being interviewed on Dec. 10 by Bill Durney of radio station WGBS, the CBS Miami outlet. The taped recording was featured later that evening on the Don Buler "Personalities in Town" show, which immediately precedes Edward R. Murrow's program.

Captions

Facing page, left to right, top to bottom: William Pollnow, Vestal, Inc.; Carl Lien, Lien Chemical Co.; Albert Miller, Orbis Products Co., and Harold Abbott, Ultra Chemical Works, George Kirby, Fairfield Chemical Division, Food Machinery & Chemical Corp., Alfred Weed, Olin-Mathieson Chemical Corp., George W. Fiero, Esso Standard Oil Co., and John Rodda, Fairfield.

Second row: Donald O'Brien, Colgate-Palmolive Co., Edmond G. Young, du Pont and W. E. Graham, Clayton Corp. W. D. Ackley, van Amerigen-Haebler, Inc.; A. F. Buckman and A. E. Budner, both of S. C. Johnson & Son Co.

Third row: Roland Avery, UBS Chemical Corp.; Manuel Fineman, Puritan Chemical Co., and E. J. Black, Stepan Chemical Co. M. Lemmermeyer, Aromatic Products, Inc., Jerry Torgerson, A. Schrader's Son, Division of Scovill Mfg. Co., and Glenn Doerr, Federal Varnish Division.

Fourth row: Frank J. Oertel, Esso Standard Oil Co.; Amos Badertscher, McCormick & Co.; Anthony Grady, Sinclair Refining Co., and Franklin C. Nelson, Esso Standard Oil Co. Robert K. Rigger, W. L. Rippeteau, Jr., and Warren Stanton, all of Wyandotte Chemicals Corp.

Fifth row: Sigmund J. Was and Fred Pickering, VCA, Inc. George A. Melven, Gillespie-Rogers-Pyatt, Inc., Clarence L. Weirich, C. B. Dolge Co. and Hubert J. Higgins, Esmond Laboratory Division, General Products, Inc.

Bottom row: Donald B. Begley, Reilly Tar & Chemical Corp., Miss Betty Dunn, Hollywood Beach Hotel, Vincent Hall, Reilly, and Mrs. E. D. Sullivan, CSMA. John Felton, Magnus, Mabee & Reynard, Inc., and Robert E. Ferris, Purex Corp.

the first in what is planned to be a series of conventions to be held away from the larger cities every three or five years. The idea was approved two years ago by a vote of CSMA members, who will shortly be asked again to express a preference for returning to Hollywood, tentatively scheduled for the 47th annual meeting in 1960. Because of the close vote by the association's board of governors favoring a proposal to sign up during the meeting with the Hollywood Beach Hotel for 1960, the CSMA board approved the idea of canvassing the entire membership to see how it stands on another Hollywood meeting three years hence.

Other matters the board of governors was asked to consider included a working arrangement with a proposed association of chemical specialties manufacturers in Canada. Also discussed was the type of relationship, if any, that might be established with aerosol trade associations being formed in Europe. The board of governors voted to authorize H. W. Hamilton, CSMA secretary, to work out the details of an arrangement with the Canadian trade association. This might include bulk mailing to the Canadian association of CSMA bulletins of interest, copies of the Proceedings, CSMA official test meth-

Harry E. Peterson, head of Peterson Filling and Packaging Co., and retiring president of CSMA, with Montfort A. Johnsen, technical director of Peterson.

ods and materials, etc. The CSMA board of governors, however, indicated that it prefers the Canadian group not adopt a name similar to that of CSMA.

In exchange, the Canadian organization would turn over a portion of the dues of its members to CSMA and permit CSMA members to register at its meetings for the same price as Canadian members pay. Similarly, members of the Canadian association would pay the same registration fees at CSMA meetings as members of the American association.

On the matter of European aerosol associations, CSMA has authorized Frederick G. Lodes of Lodes Aerosol Consultants, Inc., New York, to act as its representative in discussing aims and purposes of European groups with their officials. He is also expected to explore possible methods of exchanging information and ideas and discuss general liaison between CSMA and European aerosol groups. Also expected to be covered in discussions with European aerosol people is the possibility of the formation of chemical specialties manufacturers associations with aerosol divisions, similar to the organization of CSMA in the U. S. Although no date has been set as yet for Mr. Lodes' trip to Europe, it is believed he will go abroad early this year. Upon his return he will make a full report to the board of governors of CSMA at its spring meeting.

Four of the five members of the administrative committee of the Automotive Division of CSMA. They are, left to right, A. James Coulter, Gulf Oil Corp., chairman; C. A. Weslager, Fabrics and Finishes Division, du Pont, vice-chairman; C. E. Allderdice, Jr., Bell Co., and A. E. Tongue, Olin Mathieson Chemical Corp. Missing when photograph was taken was Harold A. Lederer, R. M. Hollingshead Corp.

Captions: Facing Page

Top row, left to right: Russell G. Puhle, Tykor Products division, Borden Co.; Charles R. Lichtenberg, Chicago Sanitary Products Co. and Adrien DuBois, West Chemical Products, Inc. Richard F. Burke, Tube Manifold Corp.; Frank A. Lucard, Pennsalt Chemicals, Inc., and R. C. Willson, Jr., Pennsalt.

Second row: Aldo S. Pero, Fluid Chemical Co.; J. C. Kratzer, National Carbon Co. division of Union Carbide Corp., and E. D. Bennett, Fluid. Walter Mannheimer, Miranol Chemical Co. and Dr. Robert F. Prindle, Lehn & Fink Products Corp.

Third row: T. K. Webster and J. H. Fredette, American Can Co. and Donald J. Templeton, Stanley Home Products, Inc. William W. Walton, Bureau of Standards; Frank J. Pollnow, Jr., Vestal, Inc., and John D. Conner, Cummings, Sellers, Reeves and Conner, CSMA general counsel.

Fourth row: John J. Fish, M. J. Hoover, George A. Petrie and Maurycy Bloch, Warwick Wax Co. Robert H. Abplanalp, Gordon C. Gilroy and Joseph A. Pizzurro, Precision Valve Corp.

Fifth row: Stanley Coryell, R. M. Hollingshead Corp.; R. C. Gergle, Dow Corning Corp., and D. M. Francisco, Dow Corning. Cyril S. Kimball, Foster D. Snell, Inc., and Donald Martin.

An international aerosol organization has been set up in Switzerland and local (national) organizations are either under consideration or in the process of formation in Germany, Italy and Great Britain.

Other highlights of the four day meeting, which got under way the morning of Dec. 9, with a general session, following a meeting of the board of governors, was the election of officers and directors for 1958 and the presentation of the aerosol awards to the marketers whose products were judged best from the standpoint of sales appeal. Both the election of officers and presenting of aerosol awards took place at the first general session.

James E. Ferris, product manager of inorganic chemicals for Hooker Electrochemical Co., Niagara Falls, N. Y., was elected president of CSMA, with Donald M. King of Masury-Young Co., Boston, succeeding him as first vice-president. Elected to succeed Mr. King as second vice-president is George W. Fiero of Esso Standard

MONDAY TUESDAY WEDNESDAY
PLAN NOW to ATTEND

Henry S. Rudzki of Rexall Drug Co., Los Angeles, Calif., with four plaques won by his company's aerosol packages in annual aerosol competition of CSMA. Photograph was taken in aerosol exhibit room, in which all entries and winners were on display.

Oil Co., New York. Peter C. Reilly was reelected as treasurer and H. W. Hamilton continues as secretary.

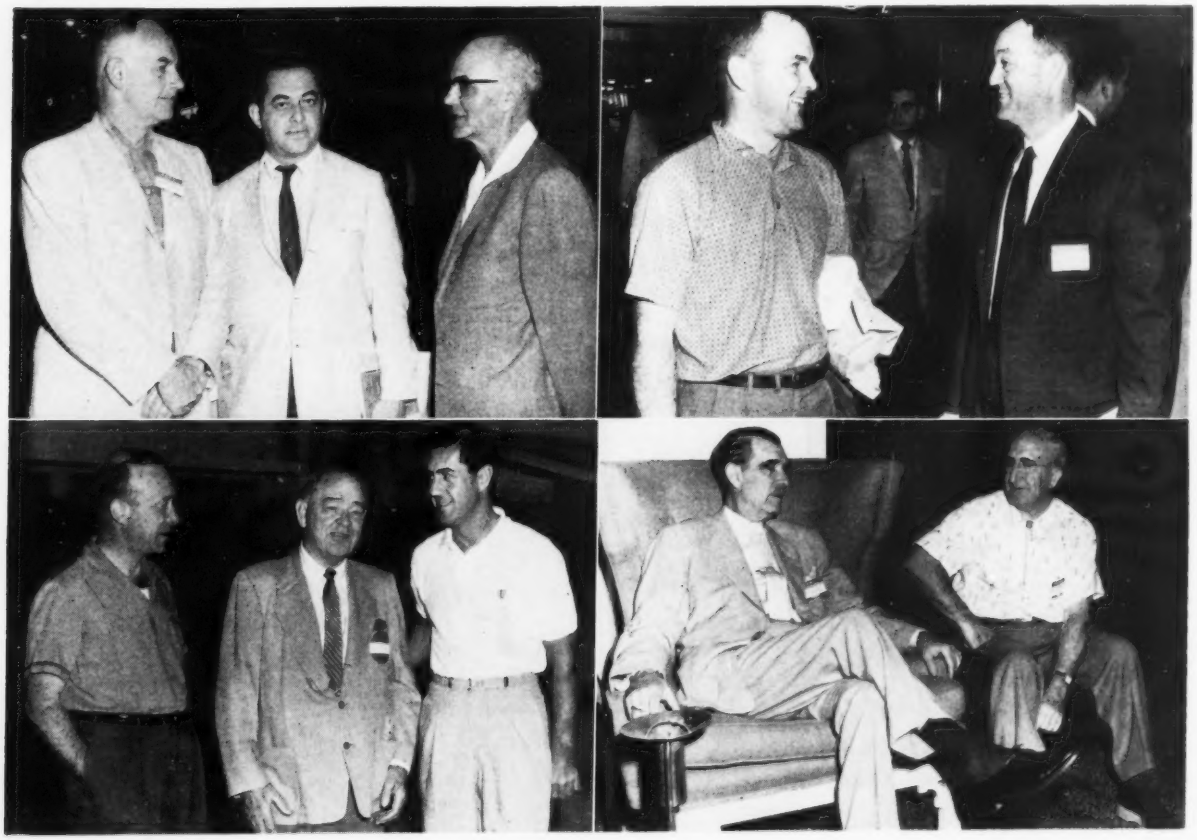
Two new members of the board of governors were elected to serve three year terms: Charles E. Beach, John C. Stalfort & Sons, Inc., Baltimore, and Charles E. Allderdice, Jr., Bell Co., Chicago. Last year Mr. Beach served as chairman of the administrative committee of the Aerosol Division and Mr. Allderdice was on the Automotive Division's administrative committee. Retiring CSMA president, Harry E. Peterson, president of Peterson Filling and Packaging Co., Danville, Ill., also joins the board to serve a three year term.

Board members whose terms expire include: W. S. Jessop, U. S. Sanitary Specialties Corp., Chicago; Alfred Weed, Olin Mathieson Chemical Corp., Baltimore, and Edmond G. Young, Freon Products Division, E. I. du Pont de Nemours & Co., Wilmington, Del.

Chairmen of the six divisional administrative committees who were elected at the mid-year meeting in May in Chicago, and who were inducted at the meeting in Hollywood, Fla. include: (Aero-

Left to right: T. E. Webster, American Can Co.; H. R. Shepherd, Aerosol Techniques, Inc., and Cecil Arnold, Warwick Wax Co. Gordon Gilroy, Precision Valve Corp. and Ralph Smith, Crown Cork & Seal Co. Can Division.

Bottom row: William Ackerly, van Amerigen-Haebler, Inc., N. G. Gothard, Sinclair Refining Co., and Alvin F. Lindsay, van Amerigen-Haebler, Inc. Jack Felton, Magnus, Mabee & Reynard, Inc. and William E. Baulieu, Bridgeport Brass Co.



Left to right and top to bottom: Gordon Lang, Connecticut Chemical Research Corp. of Canada and H. R. Shepherd, Aerosol Techniques, Inc. N. J. Gothard, Sinclair Refining Co. and John Gothard, Swift & Co. George Foy, Shulton, Inc., and Leonard J. Oppenheimer, West Chemical Products, Inc.

Bottom row: Peter Clapp, Western Filling Co. and Jack Campbell, Continental Filling Co.; Sidney Siggia, General Aniline & Film Corp. and Frederick A. Lodes, Lodes Aerosol Consultants, Inc. David S. Tillotson, Pennsalt Chemicals Corp., and George Hartz, Olin-Mathieson Chemical Corp.

sol Division) W. Earl Graham, Clayton Corp; (Automotive Division) A. James Coulter, Gulf Oil Corp.; (Disinfectant and Sanitizers Division) Irving Gaines, Onyx Oil & Chemical Co.; (Insecticide Division) John A. Rodda, Fairfield Chemical Division, Food Machinery & Chemical Corp.; (Soap, Detergents and Sanitary Chemical Products Division) Clarence L. Weirich, C. B. Dolge Co.; and (Waxes and Floor Finishes Division) Cyril S. Kimball, Foster D. Snell, Inc.

A. James Coulter,
Automotive Division Chairman

The board of governors is composed of the newly elected officers, chairmen of administrative committee, directors indicated above, and the following hold-over members:

Melvin Fuld, Fuld Brothers, Inc.; Frederick G. Lodes, Lodes Aerosol Consultants, Inc., and Ira P. MacNair, president of MacNair-Dorland Co., publishers of *SOAP & CHEMICAL SPECIALTIES* magazine, official publication of CSMA. These men's terms expire at the end of this year. Also, A. E. Budner, S. C. Johnson & Son, Inc.; Emil G. Klarmann, Lehn & Fink Products Corp., and Russell G. Puhle, Tykor Products Division, Borden Co. Their terms expire in 1959.

In their paper reporting on an improved method of loading aerosol containers F. A. Bower of du Pont and Robert G. Appenzeller of G. Barr & Co. presented before the Aerosol Division meeting, Dec. 11, stated that their laboratory experiments demonstrate that loading of a self-purging concentrate offers several possibilities of improvement over presently used filling methods. The refrigeration problems associated with cold filling can be avoided, as can the purging problems normally connected with pressure filling. By minor modifications the major problems connected with this loading technique can be eliminated, say the authors.

C. E. Allderdice, Jr.
New member of the Board

"Sesoxane" as a

Synergist for Methoxychlor

Combinations of methoxychlor and "Sesoxane" have synergistic action on a wide variety of insects such as house flies and cockroaches.

By Homer E. Fairchild*

Grasselli Chemical Department
E. I. du Pont de Nemours & Co.
Wilmington, Del.

"SESOXANE" is the trade name given to 2-(2-ethoxyethoxy)-ethyl 3,4-methylenedioxyphenyl acetal of acetaldehyde by Shulton, Inc. ("Sesoxane" Tech. Bull. 1001.) Beroza (1956) briefly described methods for making this and related compounds. Later, Fales *et al.* (1957) reported "Sesoxane" to be a very effective pyrethrum synergist.

Shulton, Inc. (Tech. Bull. 1001) reported that "Sesoxane" has an acute oral LD_{50} of 2000 milligrams/kilogram for rats. Since Metcalf (1955) has stated that methoxychlor is one of the safest of all insecticides (having an acute oral LD_{50} of 6000 milligrams/kilogram for the rat) a combination of "Sesoxane" and methoxychlor should be most attractive for household insect control.

This paper presents the results of preliminary laboratory experiments with "Sesoxane" as a methoxychlor synergist in acetone sprays applied to six insect species and one species of mite.

Materials and Methods

Insecticides: The "Sesoxane" used in these experiments was obtained from Fine Chemicals Division, Shulton, Inc., and the methoxychlor was manufactured by E. I. du Pont de Nemours and Company, Inc.

Insects and Mites: The species used in the tests and pertinent information regarding them have been listed below. All species were reared according to either CSMA or established methods.

1. House fly (*Musca domestica* L.): 3-4 day old specimens of CSMA 51 strain and 5-6 day old individuals from the Roberds strain.

2. German cockroach (*Blatella germanica* L.): nymphs passing a U. S. Standard Sieve Series No. 8 screen but retained on a U. S. Standard Sieve Series No. 12 screen.

3. Confused flour beetle (*Tribolium confusum* Duv.): adults.

4. Granary weevil (*Sitophilus granarius* L.): adults.

5. Black carpet beetle (*Attagenus piceus* Oliv.): larvae passing a U. S. Standard Sieve Series No. 14 screen but retained on a U. S. Standard Sieve Series No. 16 screen.

6. Bean aphid (*Aphis fabae* Scop.): mixed adult and nymph populations.

7. Two-spotted mite (*Tetranychus telarius* L.): mixed adult and nymph population. Mortality counts based on adult females.

Methods of Insecticide Application: For all tests of sprays with the house flies, German cockroaches, confused flour beetles, black carpet beetles, and granary weevils, an aspirator sprayer was used. The nozzle was located 24 inches above the cages and the spray delivered vertically onto a moving conveyor. The air pressure was adjusted to deliver approximately five milligrams of water per square centimeter. A similar sprayer mounted over a turntable platform was used to spray the bean aphids and two-spotted mites. The spray, adjusted to deliver 50 milliliters of water per 0.62-0.64 minute, was delivered vertically from a distance of 18 inches onto the platform as the aphids or mites passed once at the rate of 3.3 revolutions per minute. All treatments were applied as acetone sprays.

For the studies with the house flies each replicate, consisting of approximately 50 insects, was sprayed in a stainless steel ring, three inches in diameter and 1.5 inches deep, with fly screen squares held on the top and bottom by rubber bands. The flies received a five per cent sugar solution for food while being held in the rings for the mortality records.

Table 1. Synergistic activity of 1:1 ratios of "Sesoxane"-methoxychlor on CSMA 51 house flies (averages of 3 replicates)

Treatment	% Knockdown in 30 Minutes	% Kill in 24 Hours
Test 1		
.05% "Sesoxane"	0	0
.05% "Sesoxane" + .05% methoxychlor	91.3	90
.05% methoxychlor	60.7	36.6
Test 2		
.07% "Sesoxane"	0	0
.07% "Sesoxane" + .07% methoxychlor	97.3	97.3
.07% methoxychlor	82	49.3

Table 2. Evaluation of 1:5 and 1:10 ratios of "Sesoxane"-methoxychlor on CSMA 51 house flies (averages of 2 replicates)

Treatment	% Knockdown in 30 Minutes	% Kill in 24 Hours
Test 1		
.01% "Sesoxane"	0	0
.01% "Sesoxane" + .05% methoxychlor	34	42
.05 methoxychlor	17	24
Test 2		
.005% "Sesoxane"	0	6
.005% "Sesoxane" + .05% methoxychlor	37	50
.05% methoxychlor	17	24

*Paper presented during 44th annual meeting of the Chemical Specialties Manufacturers Association in Hollywood, Florida, Dec. 10, 1957.

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U.S.I. CHEMICAL NEWS

January ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1958

New Non-Narcotic Drug Has Potency of Codeine

A new analgesic drug – dextro propoxyphene – is now on the market. It is reported to be clinically equivalent to codeine in intensity of analgesia, and in onset and duration of action. At the same time, side effects are said to be fewer. No toxic effects on liver, blood, brain, kidneys or other organs have been demonstrated. And, after several years of exhaustive tests, government authorities have classified the material as non-narcotic drug – producing no euphoria, tolerance or physical dependence.

Dextro propoxyphene hydrochloride also acts as an antipyretic, reducing fever, and as an anti-inflammatory, combatting local hyperemia and swelling. Clinical usefulness is expanded by combining this amino ester with other ingredients such as acetophenetidin, caffeine and acetylsalicylic acid.

Although chemically different from all other analgesics, it is believed to act in the same manner as meperidine, codeine and morphine – that is, by raising the pain perception threshold through depression of the sensory area of the brain.

Riboflavin Overcomes Boron's Growth Inhibition

A European microbiologist has found that riboflavin overcomes the growth inhibition of test organisms caused by boron. None of the other B vitamins have this effect.

These findings may have some importance in areas such as the American southwest where the soil has a high boron content. Boron is taken from the soil by plants which are consumed by livestock, and the element may tend to interfere with the vitamin metabolism of these animals.

Viscosity Changes May Be Clue to Chemical Activity In Complete Ester Mixtures

Investigations reported in the literature have revealed that the viscosity of true ester mixtures of ethyl alcohol, acetic acid, ethyl acetate and water changes steadily on standing. The conclusion is that association, dissociation, hydrate and solvate formation are taking place, and that viscosity determinations may therefore be useful in studying the progress of such activity.

Viscosity has long been employed to determine the extent of molecular association, and the degree of solvate and hydrate formation in liquid mixtures at some particular moment. It has never been used, however, to examine changes over time intervals.

In the study reported, relative viscosity measurements were made on complete ester mixtures after 2, 9, 21, 51, and 84 days. Viscosities changed steadily, but tended to reach an equilibrium value. The investigators feel that this time factor must be properly evaluated before further study of hydrates, solvates and association values is made.

Sorbitol Solubility Measured In Elixirs and Syrups Containing Alcohol and Water

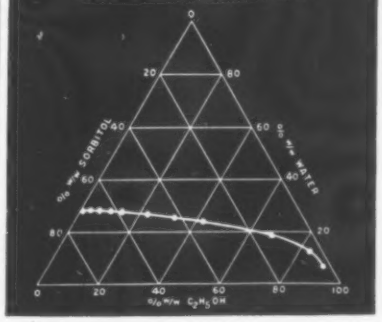
Studies Reveal Solubility of Sorbitol in Water-Ethanol Mixes

The hexahydric alcohol, sorbitol, widely used in liquid pharmaceutical preparations, has now been thoroughly studied in water-ethyl alcohol systems to determine extent of solubility. The table and phase diagram below show the results of this investigation. They indicate that a sizable amount of sorbitol can be incorporated into most pharmaceutical systems of hydroalcoholic character–about 65% by weight in 20% alcohol, about 50% by weight in 50% alcohol, about 14% by weight in 80% alcohol, and so on.

SOLUBILITY OF SORBITOL IN HYDROALCOHOLIC LIQUIDS AT 25°C.

Sample	% v/v C_2H_5OH	Sp. Gr. Saturated Solution	% w/w Sorbitol	% w/v Sorbitol
1	0	1.308	71.90	94.05
2	11.33	1.284	68.62	88.22
3	20.73	1.265	66.02	83.50
4	33.86	1.233	62.38	76.92
5	41.47	1.200	57.98	69.59
6	52.80	1.152	50.45	58.12
7	62.33	1.089	42.70	46.49
8	71.56	1.026	33.84	34.72
9	82.20	0.9123	13.64	12.42
10	90.94	0.8433	3.41	2.88
11	95.41	0.8177	1.92	1.57

Phase Diagram of Sorbitol Solubility in Hydroalcoholic Liquids at 25°C.



It has been well known for some time that while sorbitol is highly soluble in water alone, the solubility tends to decrease when ethyl alcohol is added. Since sorbitol acts as a vehicle in many cough syrups, elixirs and vitamin preparations which contain alcohol, the extent of this decrease has become a question of great interest to the industry. Until this study was made, no data on the subject had been available.

Properties which have made sorbitol useful to the food and drug industries include sweet

MORE

Polyethylene Use Is Extended by New Compounding Process

A process, whereby polyethylene is combined with 50% or more of carbon black to create compositions which remain flexible even at extremely low temperatures, has been developed by Godfrey L. Cabot, Inc.

These compositions are said to be strong enough for structural use where rigidity and pressure resistance are important. Creep and fracture are reported to be minimum.

A variety of molded and extruded parts have been fabricated successfully from the new material. Pipe, for example, has exhibited resistance to stress cracking, improved high temperature behavior, virtual elimination of plastic flow, and improved resistance to deterioration by solvents and oils. Lab tests have indicated that burst strength is doubled. The same applies to wire and cable cover.

Cabot feels that the development makes possible a new range of usefulness for polyethylene. They will not manufacture these compositions themselves but will supply the carbon black and their process knowledge to polyethylene producers such as U.S.I.

New Ceramic Textiles Withstand Heat of 2000°F

Aluminum silicate fibers have now been converted into a variety of textile forms for high temperature applications.

Fabrics weighing from 15 to 74 ounces per square yard are said to have excellent insulating properties due to low thermal conductivity, high yarn bulk, natural resilience and small fiber diameter. Stainless steel or nickel-chrome alloy wire is inserted into some constructions for greater tensile strength in the 1,000 to 2,000°F range.

Rovings and yarns in sizes from 600 to 1,000 yards per pound are useful as insulation for electric circuits that must withstand very high temperatures.

Rope from ¼ to ¾ inch in diameter is being applied as insulation and packing in various metallurgical refining processes.

Other suggested uses for cloth and tape include filter media, gaskets, heat and flame barriers and membranes, conveyor belts, protective clothing and insulating blankets.

January ★ **U.S.I. CHEMICAL NEWS** ★ 1958

CONTINUED

Sorbitol

taste (about 60% as sweet as sucrose), high viscosity in water solution, lack of reaction with medicinal or other ingredients, ability to inhibit crystallization, and humectant action. It is often used in combination with glycols, glycerin and sugar syrup as well as ethyl alcohol.

Paper Can Now Be Made From New Acrylic Fibers

A new type of paper has been developed which will be of special interest to the laminating industry and for electrical uses, chemical filtration, chromatography and many other applications.

It is made of a new acrylic fiber, is binder-free, and can be produced on conventional machinery. Production quantities are expected in the near future.

First Caustic Soda Plant Established in Ceylon

May Also Produce Bromine

The first caustic soda factory in Ceylon, built by a government-sponsored corporation, is expected to begin operations this month. It is equipped with 56 electrolytic diaphragm cells having a daily output capacity of five tons of caustic soda.

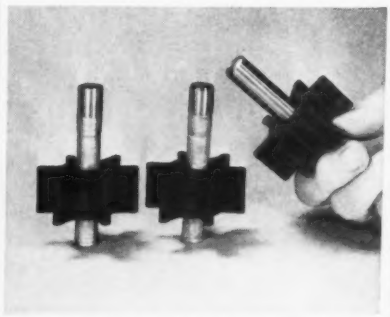
Bromine may also be produced. In the manufacture of common salt from sea water, a nearby factory discards thousands of tons of bromine-rich waste liquors. Engineers are considering the production of high-grade elemental bromine from these wastes.

Titanium Impeller Shaft Solves Corrosion Problem In Pumping Ferric Chloride

Impeller shafts of commercially pure titanium are now being used in pumps to carry ferric chloride solutions. They are reported to yield at least 320 hours of pump service without leakage. Materials tried previously — special ferrous and non-ferrous alloys, and platings of nickel, silver and rhodium — have given maximum service life of 45 minutes due to corrosion of the shaft and loss of tight seal.

The titanium impeller shaft was originally incorporated into a prototype pump unit and tested to solve a particular problem in the etching of printed circuits. It was found that the prototype unit would run for at least 321 hours without damage. And the initial cost of the special shaft was offset in the first 90 minutes of operation. The pump is now a regular production item.

Mallory-Sharon Titanium Corp., now affiliated with U.S.I. in the new Mallory-Sharon Metals Corp., participated in the original test runs by supplying the titanium.



At left are two impeller shafts which failed after 45 minutes of pumping ferrous chloride. Both are made of premium metals, one ferrous, one non-ferrous. At right is a titanium impeller shaft showing no sign of corrosion after two months in the same service.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

Research reactors now in operation or being built in the U.S. are reviewed in a new booklet which can be purchased from gov't. Data and illustrations on over 30 reactors are included. **No. 1311**

A marking pen consisting of a heavy-wall polyethylene squeeze tube with felt writing point, filled with ink that writes on porous and non-porous surfaces, is now on the market. It is low-cost, disposable, comes in 7 colors. **No. 1312**

New fuel oil additives to prohibit gum formation in oil stocks are fatty amine derivatives claimed to also protect against color degradation and to improve filterability. **No. 1313**

Over 1,500 assayed biochemical compounds, along with their full specifications, are listed in a new reference guide for workers in bacteriological, nutritional, biological and microbiological research. Price list included. **No. 1314**

Three new hydrazine derivatives are available in lab quantities. Hydrazine dihydrochloride is suggested as a chlorine scavenger for hydrochloric acid, hydrazodicarbonamide as a chemical intermediate, monohydrazinium phosphate as an oxygen scavenger for boiler feed water. **No. 1315**

Analytical microscopy relative to foods, drugs, spices, water is discussed in a new book which can be purchased. The 215-page book describes preparation of materials for examination, gives examples of problem solutions. **No. 1316**

Isocinchomeronic acid, suggested intermediate for drugs, insecticides, polymers, dyes, is now offered commercially. Its ring-nitrogen is said to offer possible increased dye receptivity in polymer applications. **No. 1317**

Remote evaporation and drying by infrared radiation is now possible with a new heater for lab and semi-industrial use. Placed above a flat crucible, the radiator is claimed to evaporate without boiling or loss of material. **No. 1318**

New acid inhibitor has been developed which, it is said, can be used on high carbon steel without etching. It is used at about 0.2% by volume, added to non-oxidizing acids such as sulfuric, hydrochloric, hydrofluoric, oxalic. **No. 1319**

Molded polyethylene waste and drainage systems are now on the market. According to the manufacturer, traps, pipe, joints, fittings will withstand intermittent flushing with boiling water without deterioration or loss of form. **No. 1320**

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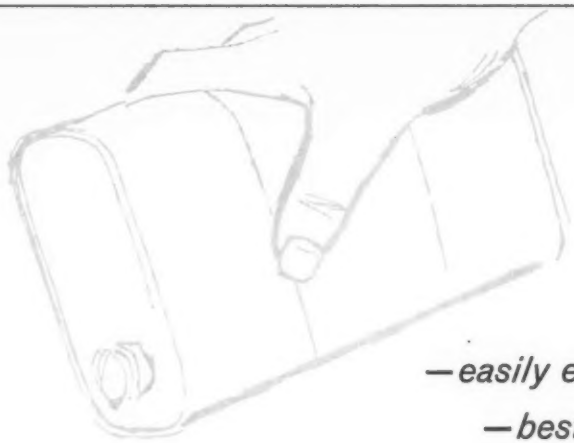

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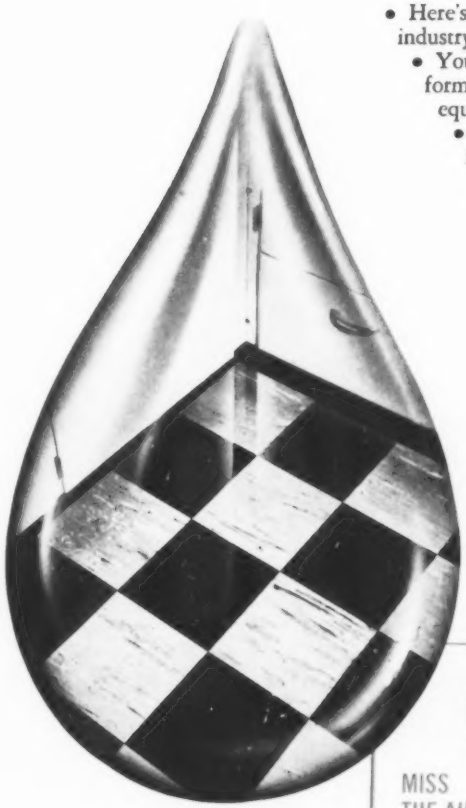

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Table 3. Comparisons of 1:1, 1:5, and 1:10 ratios of "Sesoxane"-methoxychlor on the Roberds Strain of house flies (averages of two replicates)

Treatment	% Knockdown in 30 Minutes	% Kill in 24 Hours
Test 1		
0.4% "Sesoxane"	0	0
0.4% "Sesoxane" + 0.4% methoxychlor	35	32
0.4% methoxychlor	23	7
Test 2		
0.08% "Sesoxane"	0	0
0.08% "Sesoxane" + 0.4% methoxychlor	35	21
0.4% methoxychlor	23	7
Test 3		
0.04% "Sesoxane"	0	0
0.04% "Sesoxane" + 0.4% methoxychlor	23	23
0.4% methoxychlor	23	7

In tests with the German cockroaches, 20 insects per replicate were sprayed in a glass dish, 2.75 inches in diameter and two inches deep, with a grease barrier along the top inside edge. For the tests with the confused flour beetles, black carpet beetles, and granary weevils, 20 insects per replicate of a species were sprayed in four-inch diameter deep Petri dish bottoms with a limited grease barrier along the top inside edge. All insects were held in the dishes until mortality determinations were made.

Approximately 30 bean aphids on an excised nasturtium leaf (Golden Gleam Var.) were sprayed and the leaf held in a vial of water until mortalities were determined. The same procedure was followed for the two-spotted mites except that they were on an excised Red Kidney bean leaf.

All test species were held in a room at 81 ± 1°F. and 55 per cent relative humidity in the interval between spraying and determination of mortality.

Table 4. Further evaluation of 1:1, 1:5, and 1:10 ratios of "Sesoxane"-methoxychlor on the Roberds house flies (averages of two replicates)

Treatment	% Knockdown in 30 Minutes	% Kill in 24 Hours
Test 1		
0.75% "Sesoxane"	0	0
0.75% "Sesoxane" + 0.75% methoxychlor	63	60
0.75% methoxychlor	31	27
Test 2		
0.15% "Sesoxane"	0	0
0.15% "Sesoxane" + 0.75% methoxychlor	32	59
0.75% methoxychlor	31	27
Test 3		
0.075% "Sesoxane"	0	0
0.075% "Sesoxane" + 0.75% methoxychlor	25	39
0.75% methoxychlor	31	27

Table 5. "Sesoxane" as a methoxychlor synergist in laboratory tests with German cockroach nymphs (averages of 3 replicates)

Treatment	% Knockdown in 30 Minutes	% Kill* in 24 Hours	% Kill* in 48 Hours
Test 1			
0.15% "Sesoxane"	0	0	—
0.15% "Sesoxane" + 0.15% methoxychlor	0	31.7	—
0.15% methoxychlor	0	1.7	—
Test 2			
0.25% "Sesoxane"	0	0	0
0.25% "Sesoxane" + 0.25% methoxychlor	1.7	46.7	55
0.25% methoxychlor	1.7	5	6.7
Test 3			
0.05% "Sesoxane"	0	0	0
0.05% "Sesoxane" + 0.25% methoxychlor	5	20	25
0.25% methoxychlor	1.7	5	6.7
Test 4			
0.025% "Sesoxane"	0	0	0
0.025% "Sesoxane" + 0.25% methoxychlor	10	13.3	20
0.25% methoxychlor	1.7	5	6.7

* Includes the moribund
— No record

Results

House Flies: Evaluations on CSMA 51 house flies with 1:1, 1:5, and 1:10 ratios of "Sesoxane"-methoxychlor are presented in Tables 1 and 2. It will be noted that there was a very pronounced degree of synergism for knockdown and kill at the three ratios.

Treatment combinations with 0.4 and 0.75 per cent methoxychlor were used to evaluate "Sesoxane" as a methoxychlor synergist against the Roberds strain of resistant house flies. The results for ratios of 1:1, 1:5, and 1:10 of "Sesoxane" to methoxychlor are given in Tables 3 and 4. Synergism was demonstrated in the mortality data for the three treatment ratios. However, the addition of "Sesoxane" to methoxychlor failed to improve knockdown except at the 0.75 per cent concentrations (Table 4).

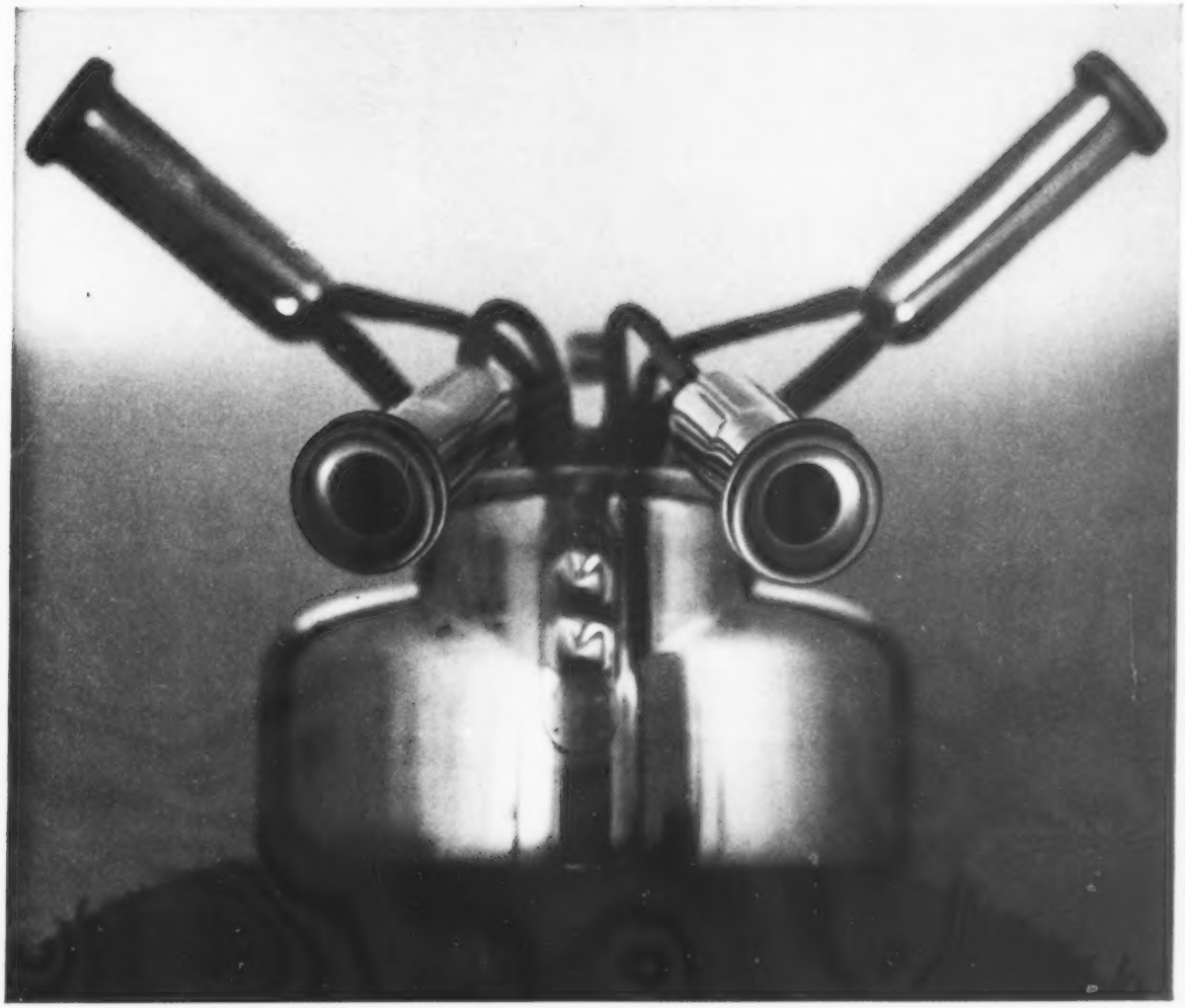
German Cockroaches: Experiments demonstrating a high degree of synergism by "Sesoxane" when used with methoxychlor against nymphs of the German cockroach, *Blattella germanica* L., are summarized in Table 5. More practical treatments of "Sesoxane"-methoxychlor were next evaluated against German cockroach nymphs

(*Turn to Page* 151)

Table 6. Further evaluations of "Sesoxane" as a synergist of methoxychlor in tests with nymphs of the German cockroach (averages of 3 replicates)

Treatment	% Knockdown in 30 Minutes	% Kill* in 24 Hours
Test 1		
0.5% "Sesoxane"	1.7	0
0.5% "Sesoxane" + 4.0% methoxychlor	8.3	100
4.0% methoxychlor	5	36.7
Test 2		
1.0% "Sesoxane"	0	1.7
1.0% "Sesoxane" + 4.0% methoxychlor	3.3	98.3
4.0% methoxychlor	5	36.7
Test 3		
1.0% "Sesoxane"	0	1.7
1.0% "Sesoxane" + 2.0% methoxychlor	6.7	98.3
2.0% methoxychlor	5	13.3

* Includes the moribund



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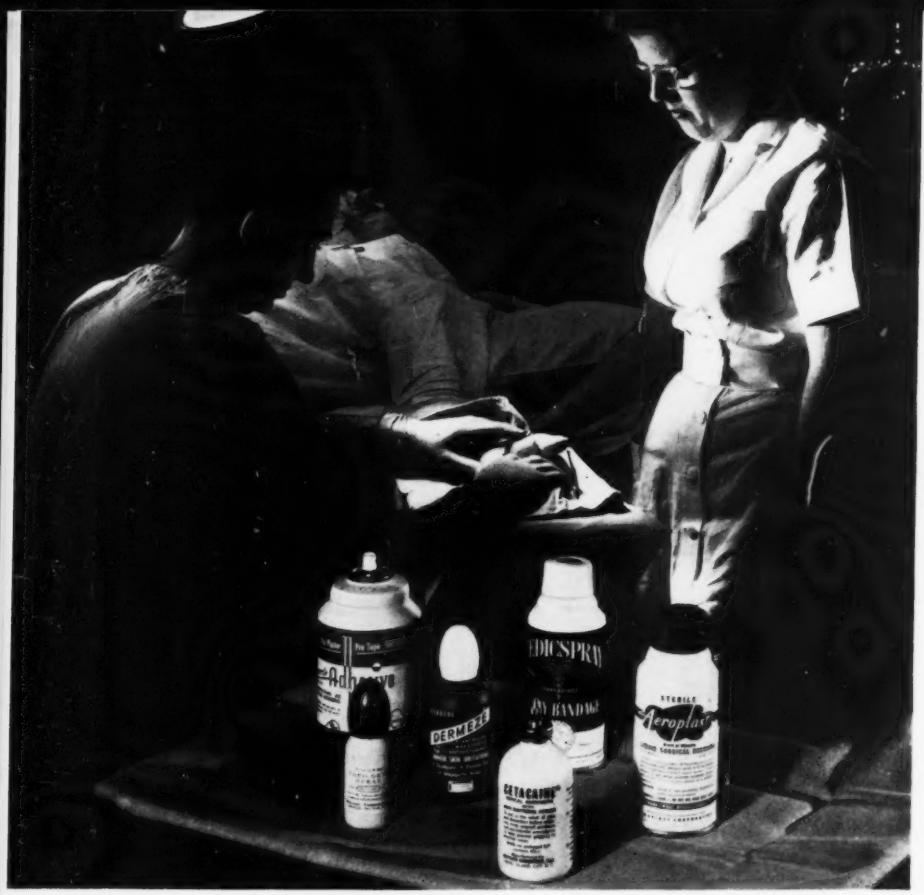

Pharmaceuticals in aerosol form offer convenience, particularly for skin application, as a major advantage.

Du Pont Magazine photo

Pharmaceutical Aerosols

LAST year about 325 million aerosol units were produced valued at $325 million. Since the introduction of the first aerosols eleven years ago pressure packaging has passed the billionth package mark, and is setting its sights at that figure as an annual production rate within five years.

Of the many different types of aerosol products being marketed today, only five account for approximately three-fourths of the aerosol dollar market. These are space insecticides, room deodorants, hair sprays, shave creams, and paints.

Analyses of the various classes of aerosols on the market reveal that the products which may be classified as pharmaceutical aerosols amount to a fraction of one per cent. (In 1956 less than two and a half million aerosol packages of medicinal and pharmaceutical items were produced.) There is little doubt but that with proper educational, research and developmental programs, this percentage may be increased by many-fold in the coming years. This paper will present reasons why the number of pharmaceutical aerosols to be marketed will increase in the next few years; their fields of application, their potential dollar market; and what the aerosol industry might do to stimulate their development.

* Paper presented before the 44th annual meeting of the Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 11.

Advantages of Aerosols

IT IS AN established fact that the cost of a pharmaceutical product marketed as an aerosol must of necessity be slightly higher than that of more conventional type dosage forms. Therefore, in order for a pharmaceutical manufacturer to plan on the development of an aerosol dosage form, he must justify the additional cost. What are some of the advantages of an aerosol dosage form which not only will justify this additional cost but in reality may make the product more economical, more effective therapeutically, and more readily accepted by the public?

A major advantage of aerosols is their ease of application. Such application is speedy, convenient, uniform and necessitates very little manual contact with the medicament. Another significant advantage is that the dosage may be controlled by the use of metered valves. Topical medicinal aerosols applied to an injury produce a minimum of irritation to the treated area. Aerosols also can be designed to dry very rapidly when administered topically.

Since an aerosol dosage form is gas-tight, there is no access of

Inherent advantages of aerosol dispensing to assure pressure packagers of expanding market in medicinal specialties industry

By Dr. Martin Barr*
Philadelphia College of Pharmacy and Science

air to the product. This prevents contamination, evaporation during periods of non-use, and preserves the potency of the active ingredients through the elimination of oxidation, etc.

Many drugs may be administered as aerosols for inhalation therapy. The advantages of this type of aerosol therapy are the possibility of obtaining a high concentration of drug over a limited area, almost instantaneous response to the medication and less danger of decomposition of the medicament since it does not pass through the gastro-intestinal tract.

A listing of various pharmaceutical products which have appeared on the market as aerosols are listed in Table I. Let us now discuss the types of products which have been or may likely be marketed shortly as aerosols and the advantages of using such dosage forms.

Dermatologicals

THE largest number of pharmaceutical aerosols being marketed today are for topical use. It is not unrealistic to philosophize that most externally used products, such as ointments, creams, liniments, lotions and powders, may someday be dispensed as aerosols. Certainly there are many advantages of the aerosol dosage form as compared to the conventional ones to indicate this.

One is all too familiar with the waste and messiness produced in the handling of most externally used products by both physician and patient. The time consumed, the non-uniformity of application and the irritation caused by manual application of the medication are other well-known disadvantages. The use of these type products in the form of aerosols would eliminate most of these objectionable features.

There has been much interest shown in the preparation of foot products as aerosols. There are presently on the market pharmaceutical aerosols intended for use on the feet as antiseptics, deodorants, drying powders, cooling preparations, astringents and fungicides. This is one area where aerosols have been applied and where more work is indicated. It is logical to assume that because of the advantages of aerosol dosage forms, most preparations in this field will be aerosols in the near future.

Several pharmaceutical pressure packages intended for use as antiseptic applications have appeared on the market in the last few years, some containing antibiotics. These have appeared as both liquid and powder aerosols. The field of anti-infective aerosols, containing any of the commonly used antiseptics or antibiotics, is wide open.

Pharmaceutical aerosols intended for the treatment of poison ivy have been introduced. These preparations are of the lotion type. Much work remains to be carried out in this area.

Other examples of dermatological classes of preparations which warrant study as aerosols are: steroid-containing topical products, vitamin-containing products, antihistamine preparations, calamine and/or zinc oxide-containing preparations, sulfur and/or resorcinol products tar-containing products, fungicides, scabicides, burn preparations, anti-pruritics, protectives, cleansers, emollients, and lubricants.

". . . much interest shown in . . . foot products as aerosols . . ."
Du Pont Magazine photo

The use of the spray bandage aerosol is of interest. Some limited work has been done in this field. This area is one which warrants further study because of its popular appeal.

Nose and Throat Therapy

ONE area where aerosol pharmaceuticals may have great application is in ear, nose, and throat therapy. A few such aerosols, especially for use in the nose and throat, have already been developed.

It seems logical that medicaments may be able to penetrate the nasal tract more effectively and especially the sinuses if administered in the form of an aerosol. Careful studies undoubtedly could correlate the degree of penetration with the particle size of the active constituents in the aerosol preparations.

It is an all too familiar fact that it is difficult to obtain effective concentrations of medicinal substances on the mucous membrane linings of the throat. Much is left to be desired in throat therapy with troches and gargles, since there is not sufficient contact produced between the drug and the throat when these dosage forms are employed. The throat spray, produced by the use of an atomizer, has been re-

NEW AMP FLOOR WAX EMULSIONS

Develop Water Resistance Fast!

Cost Less!

A new method for using 2-Amino-2-methyl-1-propanol in floor wax emulsions, developed by CSC's Research Department, has opened the way for a greatly improved product. The new method consists of slightly reducing the AMP content and incorporating aqua ammonia. The result: wax with excellent water resistance which develops very rapidly after the wax film is laid down.

In addition to the rapid development of water resistance with the new AMP-ammonia formulations, considerable savings in costs may be expected since less AMP is required. Other performance characteristics of the AMP-ammonia formulations such as shelf-life, freeze-thaw resistance, leveling, and gloss were fully equal to the best commercial formulations.

Proved By Performance Tests

In a series of tests, the new AMP-ammonia formulation attained "excellent water resistance" in less than *two-thirds the time* required, and at *one-third the cost for amine* when compared with a typical formulation using morpholine. A new technical data sheet describing these and other tests made with typical commercial formulations is available on request.

DISCOVER THE NITROPARAFFINS!

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sorted to for more effective local throat therapy. In this respect, aerosols appear to have a definite role in the formulation of anti-bacterial, anesthetic, and astringent preparations intended for throat therapy.

Very little has been done in the development of aerosols for use in the ear. It appears that there should be a better drug penetration of the middle ear region if medication is applied in the form of an aerosol. Conditions such as "otitis media" may be treated locally in a more successful manner by the use of pressurized medicaments.

Some limited work has been done in the development of pressurized dosage forms for dental use but much more work is indicated. Products such as local anesthetics, anodynes, emollients, astringents, and antibacterials may be conveniently and effectively administered as aero-

Table I. Pharmaceutical Aerosols*

"Achromycin" spray
Lederle Laboratories
Div. of American Cyanamid Co.
Pearl River, N. Y.
"Aeroplast" liquid surgical dressing
Aeroplast Corp.
Dayton
"Alke Mist" burn treatment
I. Landau
Cleveland
"Americaine" topical anesthetic
Arnar-Stone Laboratories
Mt. Prospect, Ill.
"Bike" athletic liniment
"Bike" antifungal spray
"Bike" skin toughener
"Bike" germicide
"Bike" tape and bandage adherent
"Bike" tape remover
Bike Web Co.
Division of Kendall Co.
Chicago, Illinois
"Blitz" cold relief
Foley and Co.
Foley, Ala.
"Burn Spra" for burns
Spray-Pack Products Co.
Cleveland
"Cenol Cold Relief" spray
Cenol Co.
Chicago
"Cetacaine" topical anesthetic
Cetylite Industries
Long Island City, N. Y.
"Cool Spray" burn remedy
Furst-McNess Co.
Freeport, Ill.
"Dermafreeze"
Scully-Walton Co.
Brooklyn, N. Y.
"Dermoplast" topical anesthetic
Doho Chemical Co.
Mallon Chemical Division
New York
"Dermeze" antipruritic spray
Premo Pharmaceutical Laboratories
South Hackensack, N. J.
"Dil-Mist athletes foot spray
The Dill Co.
Norristown, Pa.
"F.O.B. (First on Burns)" burn treatment
E. D. Bullard Co.
San Francisco
"Foille" antiseptic, analgesic dressing for burns
Carbisulphoil Co.
Dallas
"Foley's Foot Care"
Foley and Co.
Foley, Ala.
"Frigiderm" topical anesthetic
Brachvogel-Hovey Co.
Los Angeles
Scully-Walton Co.
New York
"Fungi Rex" spray for athletes foot
Rexall Drug Co.
Los Angeles
"G-4" foot spray
National Aerosol Products Co.
Beverly Hills, Cal.
"G-63" burn relief spray
Gaby Co.
Philadelphia
"Gard K-7" foot spray
Gard Industries Inc.
Wilmette, Ill.
Gebauer's "Alco Spray" adhesive tape & plastic remover
Gebauer's "Fluoro Ethyl" topical anesthetic
Gebauer's "SS Spray" (soapless detergent)
Gebauer's tannic spray for burns
Gebauer Chemical Co.
Cleveland
"Glide" Athlete Foot Spray
Walgreen Co.
Chicago
Hexathricin "Aeropak" (for treatment of burns)
Lincoln Laboratories, Inc.
Decatur, Ill.
"Hexene-Ol" burn spray
The Hexane-Ol Laboratories Inc.
Cleveland
Inhalant aerosol bomb (veterinary)
C. V. McClellan Labs. Corp.
Gardens, Cal.
"Kair" allergy spray for hay fever
Victor Van Der Lind Co.
New York
"Kip" antiseptic oil
D. Bullard Co.
San Francisco
"Larsons" adhesive balm (pretape spray)
"Dr. Larson's Foot Note" spray
Larson Laboratories, Inc.
Erie, Pa.
"Mark" foot freshener and deodorant
E. L. Jacobs Co.
Indianapolis
"Medex" transparent spray bandage
General Cosmetic Corp.
Chicago
"Medihaler—Epi" (epinephrine) asthma relief spray
"Medihaler—Iso" (isoproteronal) asthma relief spray
"Medihaler—Nitro" (octyl nitrate)—for relief of angina pectoris
"Medihaler—Phen" (phenylephrine) for relief of nasal congestion
Riker Laboratories, Inc.
Los Angeles
"My-Ex" medicated foot spray ice
The Dill Co.
Norristown, Pa.
"N-B-T" spray (topical anesthetic)
Novocol Chemical Mfg. Co.
Brooklyn, N. Y.
"Nitrotan" germicide spray
Cramer Chemical Co.
Gardner, Kans.
"Picardy Air-Puff" (antiseptic powder)
Picardy, Inc.
Newark, N. J.
"Powder Puff foot powder spray
James Varley & Sons Inc.
St. Louis, Mo.
"Prophast" (dental cleaner)
Allied Professional Associates
Buffalo, N. Y.
"Q-D-A" (skin spray to reduce or eliminate tape rash)
Cramer Chemical Co.
Gardner, Kans.
"Rex Salvine" spray for burns
Rexall Drug Co.
Los Angeles
"Rexall" poison ivy lotion
Rexall Drug Co.
Los Angeles
"Rhulispray" poison ivy lotion
Lederle Laboratories
Div. of American Cyanamid Co.
Pearl River, N. Y.
"Schuco Spray Band"
Schuco Industries Inc.
New York
Shoo Foot Spray
Foley and Co.
Foley, Ala.
"Spraydern"—for poison ivy & heat rash
Westwood Pharmaceutical Co.
Buffalo, N. Y.
"Sprayway Burn Ease" sun burn cream
Sprayway, Inc.
Chicago
"Mr. Standby" burn balm dressing
Standby Products Inc.
St. Louis, Mo.
"Sterifome" surgical soap
DeMert & Dougherty, Inc.
Chicago
"Stride" foot powder spray
Lehn & Fink Products Co.
New York
Sun burn cream
Rexall Drug Co.
Los Angeles
"Surfadyne" (an anesthetic & adjunct to healing)
Allied Professional Associates
Buffalo, N. Y.
"Ta-Poff" adhesive tape remover
Ulmer Pharmacal Co.
Minneapolis
"Topicort" (for relief of itching and inflamation)
Roussel Corp.
New York
Topocaine (dental anesthetic applied to gums before novocaine needle)
Allied Professional Associates
Buffalo, N. Y.
"Tuf-Skin" spray (spray on skin to reduce or eliminate tape rash)
Cramer Chemical Co.
Gardner, Kans.
"Vapex" air spray
W. Allen Chemical Co.
Montreal, Canada
"Verdefoam" athletes foot remedy
Texas Pharmacal Co.
San Antonio, Tex.
"Williams Foot Ice
Newman Products Co.
New York

* Made available by the "Freon" Products Division, E. I. Du Pont de Nemours and Company, Wilmington, Del.

No anti-slip agent needed

Polishes containing anti-slip agents are safer to walk on but easier for water to spot. Anti-slip agents aren't needed, however, when you base your formulation on Epolene "E." This polyethylene wax has a natural "built-in" slip resistance.

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Epolene is available also in a non-emulsible form—Epolene "N"—for use in paste polishes. Eastman will be glad to show you how you can take advantage of these new waxes in your formulations. Write today for samples and literature. EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

Epolene

EASTMAN POLYETHYLENE WAXES

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sols. Interest is being shown at present in dental aerosols intended for use in oral prophylaxis. Breath sweetness, stain removers, and tooth polishes are types of products which may shortly be applied as aerosols.

Rectal Preparations

THERE have been some applications of aerosols in gynecological therapy. However, the development of pharmaceutical aerosols for possible use in the treatment of local rectal and vaginal conditions has not been significantly explored as yet. By the use of specially shaped containers and valves, it should be possible to apply medication locally to those areas in a more convenient and effective manner than has heretofore been possible.

In this respect, effective use may be made of aerosol dosage forms in applying anti-infectives, deodorants, etc.

In this case of rectal therapy, use may be made of aerosols as a dosage form for the application of local anesthetics, anti-pruritics, anti-infectives, and astringent medication.

Another possible application of rectal or vaginal aerosols is for the administration of drugs intended to be absorbed systemically. Rectal and vaginal suppositories are sometimes utilized in therapeutics as dosage forms for drugs that are intended to be absorbed systemically when it is not possible to obtain such absorption by administering the medication either orally or by injection, or where a more desirable therapeutic effect is obtained when the drug is administered in such a manner. Examples of drugs administered in this way are the barbiturates, hormones, and bronchodilators. Studies are indicated, therefore, in order to establish whether various medicinal agents are absorbed through the mucous membrane linings of the vagina and rectum and whether their use as aerosols for systemic absorption is indicated.

Inhalation therapy has been employed effectively in medicine for a number of years. The apparatus used in such therapy is usually the atomizer. However, the use of this instrument is often considered to be quite inconvenient to the patient because of its size, wastefulness, and time consumed in its operation. It is also difficult to control particle size when such an instrument is employed.

Recently, aerosol dosage forms have been introduced for inhalation therapy. Such forms of administration offer many advantages to the patient. Besides their highly effective therapeutic usefulness, they have added convenience to inhalation therapy due to the development of specially designed packages and the introduction of metered valves which permit the accurate control of dosage. Only a few such pressured packages are commercially available at present and tribute must be paid to the Riker Laboratories for their pioneering work in the field of inhalation aerosols as exemplified by their "Medihaler" line.

It is well known that many drugs are capable of being absorbed rapidly from mucosal cells by inhalation. In such cases, there is prompt entrance of the medicament to the blood through the alveolar membrane; in fact, in some cases, inhalation therapy approaches the speed of intravenous therapy in its onset of action.

The effectiveness of a medicament in pressurized form is dependent to a high degree upon particle size. For example, the particle size of aerosols intended for application to the lungs must be small enough to be carried by the air stream through the nasal cavities, pharynx, larynx, and trachea, and yet large enough so that they will be deposited on the lung tissues.

Before intelligent developmental work may proceed in the field of inhalation aerosols, much basic information must be obtained concerning the physical and chemical relationships between the propellants and medicaments which would find use in inhalation therapy. The factors which influence the localization site of the aerosolized medicaments (pressure, particle size, etc.) would also have to be established.

Many inhalation aerosols have been intended for local pulmonary action. Thus penicillin and streptomycin aerosols have been administered by inhalation as adjuncts in the treatment of bronchopulmonary disease; epinephrine aerosols have been used in the treatment of bronchial asthma; and aleudrine, cocaine, procaine, lobeline or picrotoxin, taken by a human subject, can cause an immediate increase in lung volume without producing systemic effects. Substances such as ephedrine, amphetamine, neosynephrine, aminophylline, and ammonium chloride have been used as well as epinephrine as pneumodilating agents in the treatment of bronchial asthma.

Significant systemic action may be demonstrated when certain medicinal agents are administered as aerosols. Among these may be included various vasoconstrictors, vasodilators, cardiotonics, diuretics, convulsants, central nervous stimulants and depressants, hormones, and antibiotics. In these cases, the medicaments are not localized on the pulmonary tissues but are actually absorbed into the blood.

Some consideration has also been given to the administration of serums, antitoxins, antigens, pollen extracts, histamine, antihistamines, vaccines, and anti-tubercular drugs in the form of pressurized inhalants.

The surface of the aerosol inhalants field has hardly been scratched. Because of the present-day convenience of inhalation therapy brought about by the development of the aerosol dosage form, much investigational work has been stimulated in order to establish which therapeutic agents may be administered with pharmacological advantages by inhalation. It appears that this field is almost unlimited and one to which pharmaceutical manufacturers should turn their attention.

In evaluating future growth

(*Turn to Page* 105)

New Lanolin Fraction for

Wax Dispersions

By Daniel Schoenholz and George D. Burns*
Foster D. Snell, Inc.
New York City

WE have speculated for some years that one of the characteristics distinguishing vegetable from processed or synthetic ester waxes may be the presence of small quantities of plant sterol compounds in the natural product. Carnauba wax, for example, despite a relatively low content of oxygen containing groups can be readily dispersed in stable fine particle size suspensoids which dry to a bright glossy film.

Furthermore, if emulsifiers or emulsifying aids could be found of a melting point and hardness higher than that of fatty acids such as oleic and if the softening or tackifying effect of the emulsifier could be reduced, an improvement in the soil and scuff resistance of wax polish films could be achieved.

The recent advent of a solid fraction of lanolin sold under the trade name "Lanfrax" provided an opportunity to investigate these ideas. "Lanfrax" is separated from lanolin by a solvent crystallization process. A typical analysis and examination of its pertinent physical and chemical properties in this connection is shown in table I.

Table I. Composition and properties of "Lanfrax"

Free fatty acids (USP)	0.56%
Acid number	2
Saponification number	90-95
Iodine number	25
Total sterols	50.2%
Color ASTM	2½
Melting point capillary	120/125°F.

Examination of the above data indicates that "Lanfrax," like lanolin, is very rich in sterols and substantially free of uncombined fatty acid. Melting point is in the range of paraffin wax. Hardness is similar to paraffin and crude beeswax.

*Paper presented at the 44th annual meeting of the Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 10.

Hardness and Melting Point

IN order to judge whether "Lanfrax" exerts less softening action on waxes, blends of typical emulsifiable waxes and about 15 per cent of "Lanfrax" were first prepared and examined for melting point and hardness. Comparisons were drawn with identical blends of wax and fatty acid and 80/20 mixtures of fatty acid and "Lanfrax." Representative waxes were selected among the class of vegetable waxes, oxidized microcrystalline waxes, polyethylene wax, and oxidized Fischer-Tropsch waxes. The results of this examination are given in table II.

Wherever "Lanfrax" was used, melting point and hardness were greater than in equivalent blends of wax and fatty acid. The greatest change occurred with oxidized microcrystalline wax which was also affected most by the plasticizing properties of the fatty acid. The least change occurred with carnauba wax. The next hardest blends were the oxidized Fischer-Tropsch wax. A significant improvement in hardness was achieved when only 20 per cent of the oleic acid was replaced with "Lanfrax."

The effect of these differences in hardness on overall performance is reflected in the observed improvement in soil and heel mark resistance of the "Lanfrax" dispersed floor polishes found in the examination of floor service properties.

Emulsifiability

SOME typical floor polish dispersions containing the four different waxes dealt with in the previous section were selected for the purpose of studying the contribution of "Lanfrax" to emulsifiability.

Table II. Comparison of hardness of wax-"Lanfrax" and wax-oleic acid mixtures

Vegetable Wax			
Carnauba # N.C. refined	85	85	85
Oleic acid, distilled	15	12	..
"Lanfrax"	..	3	15
Capillary melting point	174°F.	175°F.	177°F.
ASTM needle penetration 77°F./100g/5 sec.	6.0	5.5	4.0
Oxidized Microcrystalline Wax			
Crown 23 Wax	85	85	85
Oleic acid, distilled	15	12	..
"Lanfrax"	..	3	15
Capillary melting point	146°F.	149°F.	154°F.
ASTM needle penetration 77°F./100g/5 sec.	25.0	20.0	9.0
Polyethylene Wax			
"A. C." polyethylene "#629"	85	85	85
Oleic acid, distilled	15	12	..
"Lanfrax"	..	3	15
Capillary melting point	160°F.	163°F.	165°F.
ASTM needle penetration 77°F./100g/5 sec.	16.0	14.5	10.0
Oxidized Fischer-Tropsch Wax			
"Duroxon J-324"	64	64	64
"Duroxon H-111"	21	21	21
Oleic acid, distilled	15	13	..
"Lanfrax"	..	3	15
Capillary melting point	142°F.	145°F.	149°F.
ASTM needle penetration 77°F./100g/5 sec.	14	11.5	6

Table III. Typical wax dispersions selected for evaluation of "Lanfrax"

Polyethylene wax dispersion		Vegetable wax dispersion		Oxidized Fisher-Tropsch wax dispersion		Oxidized petroleum wax dispersion	
Composition by weight in grams to make one quart							
Part A @ 200-210°F.:		**Part A @ 200-210°F.:**		**Part A @ 200-210°F.:**		**Part A @ 200-210°F.:**	
"AC" polyethylene "Wax 629"	60	Carnauba wax No. 3 N.C.	80	"Duroxon J-324"	90	"Crown 23" wax	90
"Durez 219" resin	60	Candelilla wax ref.	15	"Duroxon H-111"	30	"Durez 219" resin	30
Oleic acid dist.	24	"Durez 219" resin	15	Oleic acid, dist.	9		8
Part B @ room temp.:		"Mekon Y-20" wax	10				
2 Amino 2 methyl-propanol-1	16	Oleic acid, dist.	16				
Part C @ 210°F.:		**Part B @ 200-210°F.:**		**Part B @ 160-170°F.:**		**Part B @ 200-210°F.:**	
Water	690	Borax 5 mol	4	Morpholine	6	Borax 5 mol	5
		Water	20	Water	25	Water	25
		Part C @ 160-170°F.:		**Part C @ 200-210°F.:**		**Part C @ room temp.:**	
		Morpholine	9	Water	300	2 amino 2 methyl propanol-1	1
		Water	20	**Part D @ tap temp.:**		**Part D @ 200-210°F.:**	
		Part D @ 200-210°F.:		Water	388	Water	685.5
		Water	661				
Total	850	Total	850	Total	850	Total	850.0

Beginning with typical dispersions of the different waxes employing an amine soap as an emulsifier shown in Table III, the proportions of soap emulsifier (morpholine oleate, and amino-methyl-propanol oleate) were reduced in stepwise fashion, until a critical point was reached, below which a stable, bright drying, fine particle size dispersion could no longer be obtained. "Lanfrax" was then added to this critical emulsion formula, again in stepwise fashion, until a product equal in properties to the original typical dispersion resulted. The proportions of amine oleate were further reduced below the critical level and "Lanfrax" was again added in excess of the emulsifier originally required to disperse the waxes. Attempts were also made to disperse each wax with "Lanfrax" as the only emulsifier.

The polyethylene wax dispersions were prepared by melting the wax, fatty acid and emulsifier together, adding the amine and, after stirring the whole mass to uniformity, pouring the melt in hot boiling water with vigorous stirring. The whole batch was then force cooled to room temperature. The other dispersions were prepared via the water into wax procedure as follows: The waxes, resins, "Lanfrax" and fatty acid were melted together and adjusted to a temperature of about 200-210°F. The borax solution was prepared separately and added, with stirring into the wax melt. The morpholine solution was next added and immediately followed with the addition of hot water. The hot water is added slowly, in a thin stream until phase inversion, i.e., a change from a water in wax to a wax in water emulsion, takes place. Thereafter the hot water is added rapidly. When all the water has been added the whole batch is cooled rapidly to room temperature.

All adjustments in formula were compensated for by similar adjustments in water content. In this manner we were able to determine the following:

1. The range of efficiency of "Lanfrax" as an emulsifying aid in each representative wax dispersion.

2. The effects of increased "Lanfrax" content on the physical and performance properties of the wax dispersion.

3. The effects of "Lanfrax" on the performance properties of floor polishes prepared with these wax dispersions.

4. Whether or not "Lanfrax" can be used to disperse the wax without the aid of amine soap.

All of the wax dispersions were screened for the following properties:

a. Appearance when made

b. pH @ 25°C.

c. Gloss via Gardner 60° Glossmeter over black glass

d. Stability at room temperature

e. Stability at 125°F. (accelerated storage conditions)

It was found that "Lanfrax" would not emulsify the polyethylene waxes, vegetable waxes or oxidized petroleum waxes when used as the sole emulsifier. The oxidized Fischer-Tropsch waxes were partially emulsified yielding a coarse particle dispersion which developed appreciable sediment on storage at room temperature.

Table IIIa. Properties of typical wax dispersions

Properties	Polyethylene wax dispersion	Vegetable wax dispersion	Oxidized Fischer-Tropsch wax dispersion	Oxidized petroleum wax dispersion
Appearance	clear, translucent, tan colored	translucent dark brown	light colored, translucent	light brown, translucent
pH @ 25°C.	9.8	8.8	8.9	8.5
Gloss (black glass)	88	87	84	88
Stability @ 125°F.	excellent OK 30 days minimum	excellent OK 30 days minimum	excellent OK 30 days minimum	excellent OK 30 days minimum
Stability at room temp.	same as above	same as above	same as above	same as above

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When "Lanfrax" was used in conjunction with amino-methyl-propanol oleate to disperse the selected polyethylene waxes, it was found that the addition of two to eight pounds of "Lanfrax" to a critical emulsion resulted in a finer dispersion with better gloss and clarity of film. Beyond this range no further improvement was obtained. No improvement in emulsifiability was obtained when "Lanfrax" was used to replace the amine soap below the critical level.

It was found that the addition of two to six pounds of "Lanfrax" to a critical emulsion of selected vegetable waxes, to critical emulsions of oxidized Fischer-Tropsch waxes, and oxidized petroleum waxes resulted in improved dispersibility.

With the maximum addition of "Lanfrax" to the critical oxidized petroleum wax emulsions, the new dispersions were equal in appearance, clarity of film, and gloss to the corresponding amine soap dispersed illustrative floor waxes.

The efficiency of "Lanfrax" as a replacement for amine soaps in typical wax emulsions is demonstrated by comparison of the proportions used to obtain equivalent dispersion.

Table IV. Proportions of emulsifier used to obtain equivalent dispersion, of various waxes in pounds per 100 gallon batch

Wax Dispersion	"Lanfrax" pounds	Replaced (Oleic Acid + Amine) pounds	"Lanfrax" to soap ratio
Polyethylene wax	4	(8 + 2.4)	1:2.6
Vegetable wax	6	(4 + 1.2)	1:0.9
Oxidized Fischer-Tropsch wax	4	(3 + 1.0)	1:1
Oxidized Micro-crystalline wax	4	(4 + 1.2)	1:1.3

"Lanfrax" is apparently more efficient in the dispersion of polyethylene wax than for either vegetable wax, oxidized Fischer-Tropsch waxes or oxidized petroleum waxes. This is significant since polyethylene waxes are ordinarily more difficult to emulsify than other waxes. Due to the reduction of amine soap by the use of "Lanfrax," a reduction of 0.2 to 0.5 pH units was obtained in all the dispersions. The wax least affected by the use of "Lanfrax" was carnauba.

Performance Data

IN order to determine what effects "Lanfrax" would have on the general performance properties of typical floor polishes, it was desirable to prepare and evaluate representative wax dispersions with and without "Lanfrax." Accordingly, selected dispersions were blended with a leveling resin, ammonia cut "Durez 15546," in the ratio of 80 parts by volume of wax to 20 parts by volume of resin. The resulting floor polishes from each class of waxes previously studied were evaluated in laboratory tests and in floor service tests.[2]

The following significant improvements in properties were noted in each class of floor polish:

Polyethylene wax floor polish
- a. Improved wet traffic resistance.
- b. Improved freeze-thaw stability and storage stability.
- c. Improved floor service performance, i.e., definitely better soiling, heel marking and damp mopping resistance.

Vegetable wax floor polish
- a. Improved water resistance.
- b. Improved wet traffic resistance.
- c. Improved floor service performance, i.e., slightly better soiling, heel marking and damp mopping resistance.

Oxidized Fischer-Tropsch wax floor polish
- a. Improved wet traffic resistance.
- b. Improved floor service performance, i.e., better gloss after buffing, and soiling and heel marking resistance.

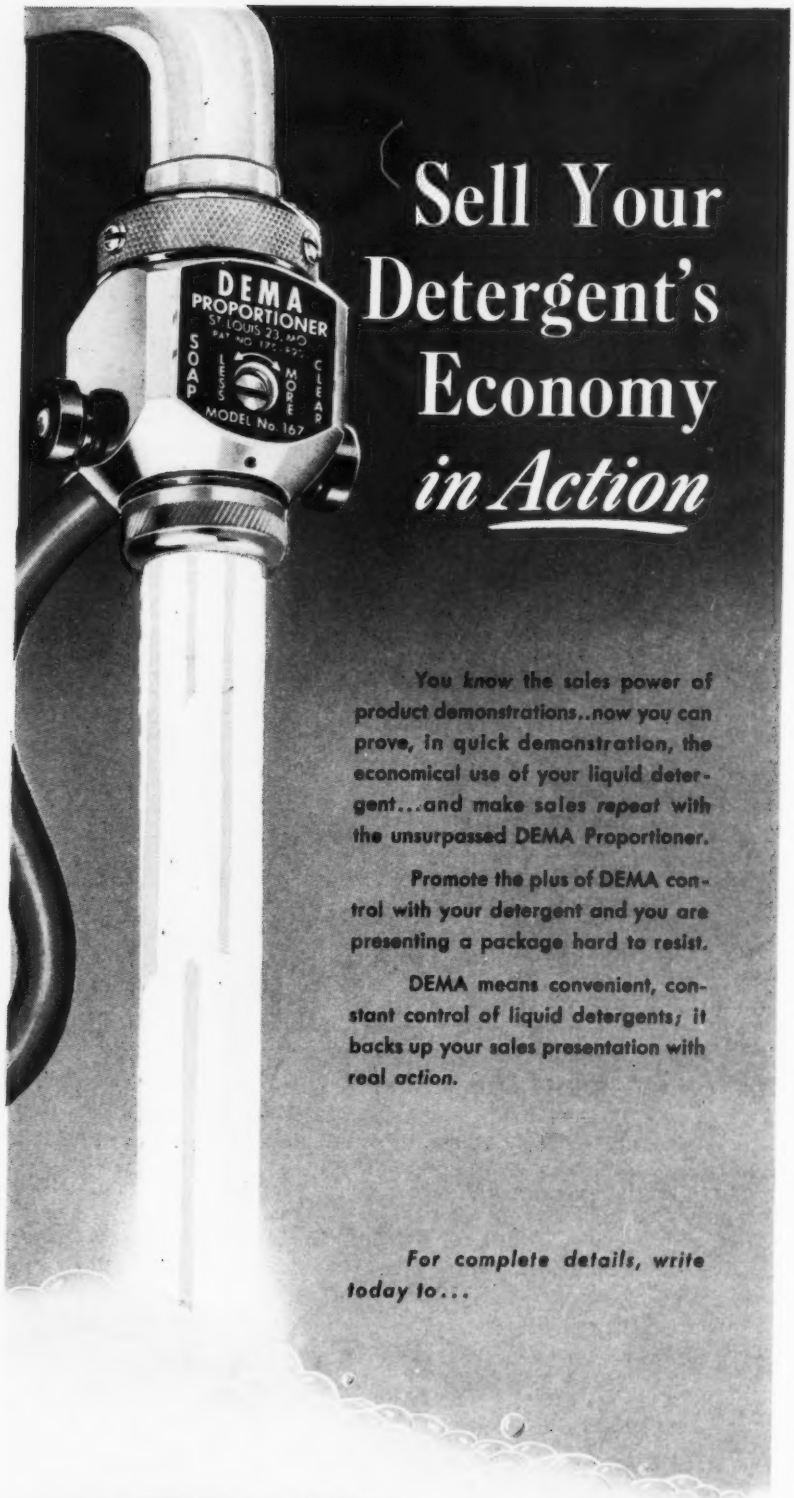
Oxidized petroleum waxes

(*Turn to Page* 103)

Table V. Effects of "Lanfrax" on performance

	Polyethylene wax polish			Vegetable wax polish			Oxidized Fischer-Tropsch wax polish			Oxidized petroleum wax polish		
Proportions of emulsifier employed in dispersion of wax combination in Table III												
Oleic acid	16	16	24	12	12	16	6	6	9	5	5	8
"Lanfrax"	..	6	..	..	6	..	..	4	..	..	4	..
Emulsifying amine	14	14	16	7.8	7.8	8.4	7	7	8	5.8	5.8	7.0
Performance properties												
Gloss Gardner 60° Glossmeter in units/mil												
Black glass	89	92	92	83	88	89	78	84	84	70	89	88
Official test linoleum *3	20	23	25	18	20	20	14	18½	18	14	16½	16
Wet abrasion resistance *4 Gardner method, per cent removal	80	50	70	60	50	70	50	30	50	50	30	45
Freeze-thaw stability												
1 cycle				OK	OK	OK	fails	fails	fails	OK	OK	OK
2 cycles	OK	OK	OK									
3 cycles	OK	OK	OK									
60° gloss-black glass	71	84	56	67	82	46	..	..	..	71	82	77
Floor service performance *after 4 weeks traffic												
Soil resistance	..	fair	poor	..	good-1	good-2	..	good-1	good-2	..	excellent	good
Heel mark resistance	..	fair	poor	..	excellent	good	..	excellent	good	..	good-1	good-2
Damp mopping resistance	..	good	fair	..	excellent	good	..	good-1	good-2	..	good-1	good-2

Numbers indicate order of preference where two products are rated the same.



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Fly Resistance Multiplies

Resistance of field collected houseflies to organic phosphates is a multiple of what it was in 1956, according to G. C. Labreque, U. S. Department of Agriculture, who spoke on the subject at the annual meeting of the Entomological Society of America held in Memphis, Tenn., Dec. 2-5.

Organophosphorus compounds to which resistance is appearing include malathion, "Dipterex," "Diazinon," and parathion. Applied as larvicides, baits, or as surface insecticide residues, these compounds have been the preferred means of housefly control in poultry houses and dairy barns for the past five years. They replaced DDT and other spray materials to which flies had become highly resistant.

Flies collected from eight dairies and six poultry houses in Florida were three to 133 times as resistant as normal flies to malathion sprays.

Ten of the fly strains were found to be three to 72 times as resistant to "Dipterex"; five strains, five to 38 times as resistant to "Diazinon," and seven, three to 18 times as resistant to parathion.

In tests with poisoned baits 10 strains were 13 to 105 times as resistant as normal flies to malathion, and four of these strains were three to 19 times as resistant to "Dipterex."

In similar tests in 1954 and 1956 the resistance in these four strains to "Dipterex" or malathion baits did not exceed eight times normal, Mr. Labrecque said.

—★—

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"Mitin" residual mothproofing treatment by Geigy Chemical Corp., Ardsley, N. Y., is the first chemical process to receive the "use-tested tag" of *McCall's* magazine, it was announced last month. Garments and furnishings treated with "Mitin" retain their repellency to moths and carpet beetles through many washings and dry cleanings. *McCall's* tag calls attention to treatment's long lasting effectiveness.

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Antifreeze Performance Testing

Three step program of laboratory, dynamometer, and road tests necessary for adequate evaluation of fuels, lubricants and engines, is needed also for performance testing of engine antifreezes.

By F. A. Gundlach, D. H. Green, C. N. Moore and C. H. Sweatt*

National Carbon Co., Division of Union Carbide Corp.
New York

IN MOST branches of the automotive industry, it is a well accepted adage that the satisfactory service performance of a new product can be best established by an extensive program of laboratory, dynamometer and road tests. The many types of full-scale engine tests used to evaluate fuels and lubricants are accepted by the oil companies as essential. Engine builders acknowledge that gruelling dynamometer and proving ground tests are necessary to the approval of a new design. Car factories utilize high-speed endurance runs, cross-country or mountain-climbing caravans, and even around-the-world tours to demonstrate the satisfactory performance of their new models. Yet, when confronted with the problem of evaluating an engine antifreeze, some consumers, marketers, and equipment manufacturers appear willing to accept or reject a particular formulation on the basis of a simple beaker test. The purpose of this paper is to show that the comprehensive program of laboratory, dynamometer and road tests considered necessary for the adequate evaluation of fuels, lubricants and engines is also essential to the proper performance testing of engine antifreezes.

The viewpoints of the authors on this subject are well known to the many automotive industry personnel with whom they have associated during their combined 88 years of experience in antifreeze research, development and sales (1) (2). In fact, this three step concept has, for many years been shared by most of the chemists and engineers responsible for the development of proprietary formulations. It has never been more timely than at present, however, because of the growing interest in methods of antifreeze evaluation by the larger consumers. In connection with the development of purchasing specifications, government agencies, marketers and automotive manufacturers are searching for a simple, inexpensive test that will predict performance in the field. Having been unsuccessful in a similar quest over a period of twenty years, the authors can offer them little encouragement. The following discussion describes the integrated laboratory, dynamometer and field test program we have found necessary for the proper evaluation of engine antifreezes in terms of actual service.

Laboratory Test Methods

Glassware Procedures: Because they require little equipment and are relatively inexpensive to conduct, simple beaker tests are usually the first approach to antifreeze performance testing. The characteristic most commonly investigated in glassware equipment is corrosion protection. Metal cou-

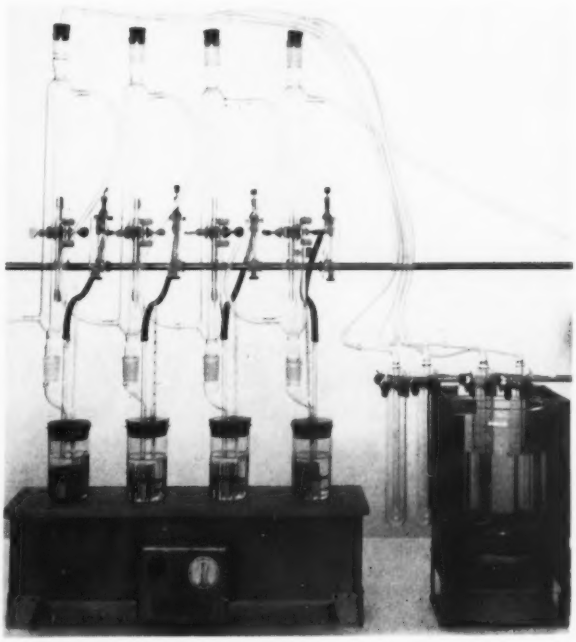


Figure 1. A.S.T.M. Glassware corrosion test units (By permission of American Society for Testing Materials.)

*Presented by C. H. Sweatt at 44th annual meeting of Chemical Specialties Manufacturers Assn., Hollywood, Fla., Dec. 10, 1957.

pons are immersed in a beaker of heated antifreeze solution for a specified period, and weight losses as well as appearance of the individual specimens are taken as an indication of the corrosion tendency of the formulation. A typical example is the ASTM Glassware Corrosion Test for Engine Antifreezes (ASTM Designation: D 1384-55T) shown in Figure 1.

One inch by two inch specimens of steel, copper, brass, solder, cast aluminum and cast iron in electrical contact are immersed in a solution of antifreeze and distilled water. This is aerated continuously and held at a temperature of 160° F. for 336 hours (3).

Procedures of this type are widely used in research and development. In the hands of experienced personnel who are aware of their limitations, glassware corrosion tests are of value in screening out unsuitable materials and suggesting formulations that may prove promising in further study. Beaker tests are also useful in quality control work when extensive technical background on the particular inhibitor system is available to provide the basis for interpretation. For the consumer, glassware methods may offer some protection against poorly inhibited or deleterious products, but they cannot be depended upon to predict overall service performance in an automobile cooling system.

The quotation below, representing the joint opinion of technical personnel from government agencies, antifreeze manufacturers and car factories, is taken from the ASTM Glassware Corrosion Test Method:

"Significance of test — The method will generally distinguish between coolants that are definitely deleterious from the corrosion standpoint and those that are suitable for further evaluation. However, the results of this test cannot stand alone as evidence of satisfactory corrosion inhibition. The actual service value of an antifreeze formulation can be determined only by more comprehensive bench, dynamometer, and field tests."

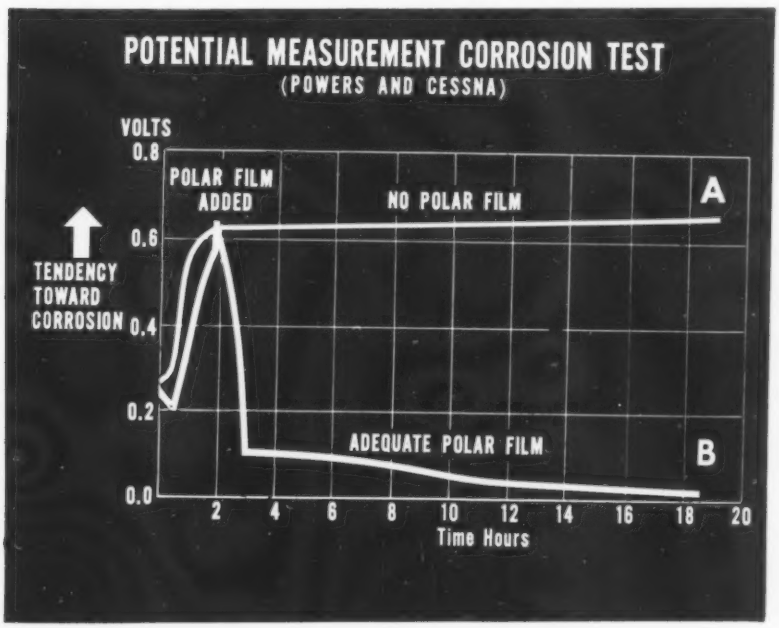
This viewpoint is developed at greater length in an appendix to the method entitled "Notes on Significance and Interpretation of the Glassware Corrosion Test."

While the ASTM method has been quoted here as a convenient example, other beaker immersion tests are subject to the same limitations. Some of the more important reasons for this lack of correlation with actual service are: First, beaker tests do not duplicate the metal surfaces, flow rates, temperature cycles and heat flux to which the antifreeze is exposed in the cooling system. Second, individual factors such as temperature, aeration or duration may be altered out of proportion to their relative influence on the coolant in an engine. Third, the difficulty of controlling metallurgy and surface finish of the metal specimens combined with the fundamentally random nature of corrosion phenomena results in poor repeatability. Thus, differences between formulas must be of considerable magnitude before they can be interpreted as significant.

Data in support of these conclusions are contained in the reference literature cited. A recent example is the case of a major marketer who drew some very definite conclusions regarding the relative merits of several proprietary formulations from the results of glassware tests. Before making a final decision the same antifreezes were evaluated in field tests. The product that looked the poorest in the beakers performed very well in actual service while the one that appeared outstanding in the laboratory rated at the bottom in road tests. Obviously, glassware methods were not adequate grounds upon which to base the choice of antifreeze formulations.

New approaches are being studied in an effort to develop glassware techniques of greater significance and shorter duration. The work of Powers and Cessna, of our research laboratory, demonstrates the continuous measurement of electrical potential between an immersed steel specimen and a calomel reference cell as useful in the study of polar-type inhibitors (4). Figure 2, a graph from their paper recently presented before the American Chemical Society, illustrates the typical behavior of a polar additive in aqueous ethylene glycol. With no inhibitor (curve "A") the potential rises rapidly to an active value, accompanied by rusting of the steel electrode. Curve "B" shows the effect of adding a polar material after two hours of active corrosion. With the deposition of a

Figure 2. Potential measurement—corrosion tendency effect of polar film inhibitors



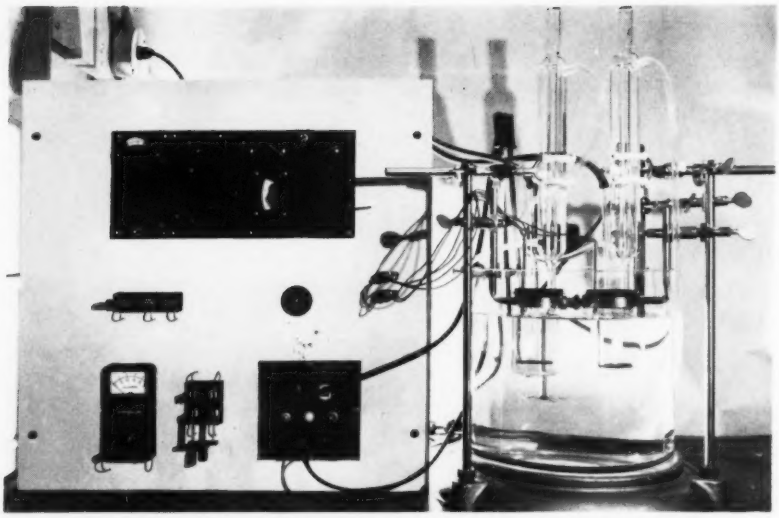


Figure 3. Unit for studying corrosion by change in resistance

protective film, potential shifts in the passive direction and there are no signs of further rusting. While this technique represents a simple and rapid tool for fundamental corrosion studies, its utility for evaluating the service performance of proprietary antifreeze formulations has not yet been established.

Another procedure currently under investigation in our research and automotive laboratories involves measurement of electrical resistance as an indication of corrosion. Similar methods are common in industrial applications, but a number of refinements have proven necessary for antifreeze studies. As illustrated in Figure 3, the apparatus consists of a very carefully controlled constant-temperature bath, a corrosion specimen of thin metal immersed in the test solution and an instrument for accurately measuring the resistance of the specimen. Any corrosion will reduce the cross-sectional area of the metal-ribbon specimen and thereby increase the resistance.

This technique has some disadvantages including the need for considerable instrumentation and the cost of preparing the test assemblies. However, it does provide a continuous indication of corrosion without disturbing the specimen and results are obtained in much less time than required by conventional immersion tests. Further study is necessary to establish whether this method yields data of improved significance as compared with present glassware procedures.

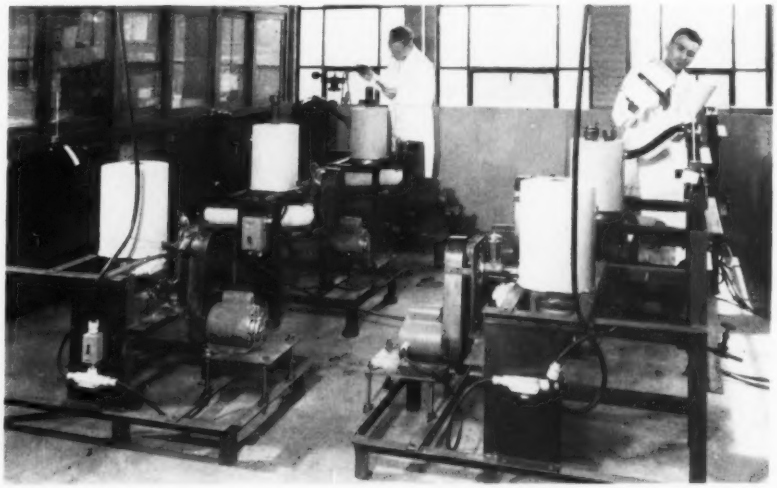
Bench-Type Circulating Tests: For the purposes of this discussion, we have classed bench-type circulating tests under the heading of "laboratory methods." Such equipment usually consists of an automobile radiator and water pump, a metal reservoir or engine block, connecting piping, and a method of heating the test solution as it is circulated through the system. Metal specimens may be placed in the reservoir to indicate corrosion.

One of the earliest published methods of this type was developed by the National Bureau of Standards (5). In this apparatus, the test solution is circulated through a reservoir containing electrically coupled test specimens suspended on a brass rod. The pump is driven at a speed equivalent to approximately 50 miles per hour and the coolant temperature is maintained at 175°F. by external heating.

Various laboratories have their own versions of the National Bureau of Standards Simulated Service Test. As pictured in Figure 4, the units employed by another of our antifreeze laboratories utilize a Chevrolet pump and radiator, a black-iron reservoir and a hot plate as specified by the N.B.S. procedure. The test is operated on a weekly cycle for a total running time of 2500 hours. The effectiveness of an antifreeze solution is judged by examination of periodic samples, weight losses of the metal specimens, and the condition of the system components at the end of the test.

Since bench-type tests simulate cooling system conditions more closely than glassware procedures, they are useful as an intermediate screening tool in research and development work where considerable technical background has been accumulated to help correlate with engine and car tests. Even then, however, circulating tests are subject to a number of limitations. The coolant is evaluated under only

Figure 4. Bank of circulating test units



one set of operating conditions in an environment that still differs considerably from an automotive cooling system. For example, heat flows from the solution to the test specimens, while in the actual engine water jacket, the flow is from the metal to the coolant. Repeatability of specimen weight losses is poor for the same reasons cited in the discussion of glassware methods. It is further impaired by factors such as variations in solution velocity and location of the coupons in the reservoir. Leakage, and the resultant deviations in solution level or volume added for make-up, will also influence results. Production tolerances in automotive radiators and pumps add to the difficulty of interpretation. For these reasons, data from bench-type circulating tests, like those from glassware methods, cannot stand alone as evidence of acceptable performance in automobiles. This is emphasized in the following paragraph from the National Bureau of Standards Letter Circular 967, covering their circulating corrosion test procedures:

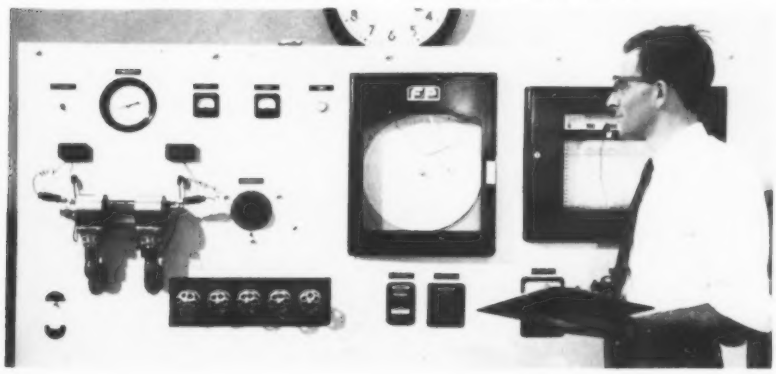
"Interpretation of results—This test is a screening operation which has not yet been correlated with actual service tests. . . . An antifreeze which shows little or no corrosive action when tested by this procedure is considered good enough to be tested by the engine block method or by actual service. Passing this test does not guarantee that the antifreeze in question will perform satisfactorily in actual service."

Bench-Type Heat-Transfer Tests: In our automotive laboratory, fundamental studies of heat transfer are carried out in bench equipment as shown in Figure 5. Here, with much simpler geometry and more precise control of variables than is possible in full-scale engines, mathematical concepts may be developed for certain basic heat transfer relationships. In this apparatus, coolant is circulated through the glass-walled test chamber at the left of the picture, where it flows over an electrically heated metal rod to simulate the heat load encountered in actual service.

High-amperage electrical energy is supplied to the rod by hollow electrodes through which the coolant circulates. Thus, with the total heat input, metal area and flow rate known, heat flux can be accurately calculated. Temperature data from thermocouples located in both the rod and the coolant permit determination of heat transfer coefficients. To best simulate the heat transfer surface of the engine water jacket, we use an iron rod having a sand-cast surface. The nature and extent of boiling can be visually observed and photographed through the glass walls of the test chamber. In equipment of this type, individual properties of the liquid and the inhibitor system can be analyzed separately to determine their effect on basic heat transfer.

(*To Be Continued*)

Figure 5. Apparatus for fundamental heat transfer studies



New MM&R Catalog

Magnus, Mabee & Reynard, Inc., 16 Desbrosses St., New York 13, recently published a new catalog containing more than 1,000 listings of essential oils, balsams, concentrated flavors, oleoresins, basic perfume oils, aromatic chemicals, and certified colors, for use in the chemical specialties and allied industries. The booklet also lists a number of new products recently developed by the company.

Wax Dispersions

(*From Page* 95)

a. Improved wet traffic resistance.
b. Improved floor service performance, i.e., slightly better soiling, heel marking and damp mopping resistance.

Conclusions

A HARD waxy lanolin derivative, rich in sterol esters, can be used to partially replace amine soaps commonly used to disperse waxes in the floor polish art. Aside from its merit as a replacement material for amine soap emulsifiers, the attendant reduction of pH made possible through the use of "Lanfrax," theoretically, permits greater freedom for blending alkali soluble resins and other extenders with such dispersions and increases the likelihood of obtaining stable products. Because "Lanfrax" is inherently water insoluble, dried floor polish films are less sensitive to damp mopping and wet traffic. In addition, since "Lanfrax" is a waxy solid at room temperature it contributes to the soil and heel mark resistance of the polish film.

Thus while no startling improvement in any one or combination of properties has been demonstrated, practical benefits have resulted in a number of respects.

Furthermore, increased attention to lanolin derivatives and solid emulsifiers and emulsifying aids may bring improved emulsifying systems which detract less from the properties of the base waxes than soaps.

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2. Schoenholz D. and Burns G. D. Construction and Operation of Floor Wax Test Floor. Paper presented at 43rd Mid-Year Meeting of Chemical Specialties Manufacturing Association.
3. Available from Chemical Specialties Manufacturers Association, 50 East 41st Street, New York 7, N. Y.
4. Test procedures Federal Specification PW-155, August 27, 1954. Sections 3.5, 3.7, 3.8 and 3.9.

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of aerosols in the pharmaceutical field, one must look at the total market value of the product groups under consideration. The results of a survey by the author indicating this market appear in Table II. The figures in the table represent an average of several reviewed surveys.

Table II reveals that the total dollar market for pharmaceuticals for which aerosol applications may be found total $190,000,000. This total is in near agreement with that recently reported by E. I. du Pont de Nemours & Co., which reported a total market of $200,000,000 in pharmaceuticals which might be packaged as aerosols in 1960. If 10 per cent of this market is effectively converted into aerosol dosage forms, the potential market value for pharmaceutical aerosols should reach about $20,000,000, about six times its present value. It is the author's opinion that this estimated potential is very conservative and should be doubled at least.

A great majority of pharmaceutical aerosols being marketed today are of the proprietary type. These types of products are sold in various outlets besides a pharmacy and naturally do not require a prescription. A good number of them are not marketed by pharmaceutical manufacturers but are actually distributed by individuals outside of the major pharmaceutical field. Practically all of these products were developed either by an aerosol consultant or a contract loader.

Although the importance of proprietary pharmaceuticals is recognized, the major growth for pharmaceutical aerosols will not reach its potential until more interest is shown in them by the major pharmaceutical manufacturers, the author believes. In his opinion the major pharmaceutical houses are interested in aerosol dosage forms, but will not produce them unless specialty products may be found. It is by the manufacture of such specialties that the manufacturers can expect to profit from their researches and they prefer to have such items available to the public on prescription only. For the most part, they refuse to enter in "over the-counter competition" through the sale of general proprietaries.

Inhalation products appear to have the greatest interest as potential aerosols from the standpoint of the pharmaceutical specialties manufacturer. Much research is necessary to establish whether aerosolized drugs are absorbed systemically or, if localized, in what site. The factors which govern both phenomena must be studied. The therapeutic effectiveness of medicinals when administered by inhalation as aerosols and the toxicology of the propellents must be conclusively established.

It will be found that the pharmaceutical industry will include in its programs such researches on aerosols, as just mentioned, as well as others. This may be expected from an industry which invests in research approximately $7.30 out of every hundred dollars in sales. The industry is interested, permit me to repeat, in specialties. The aerosol industry should become cognizant of this.

Stimulation of Interest

IT is not the intent of this paper to tell the pressure packager how to promote his product. However, there is one important shortcoming which we should like to mention: There appears to be an appalling lack of information on aerosols in the scientific literature. To date, practically no information has been published in the pharmaceutical literature. Just where may one find data on such phenomena as the solubility of various drugs and their vehicles in propellants, the stability of drugs in vehicle-propellant mixtures, and the therapeutic effect of medicinals administered as aerosols? Yes, there is some data available, but it is meager indeed. The reason may be that not much pharmaceutical aerosol research has been carried out and perhaps much of the available information is not being published.

Recognizing the potential of aerosols in pharmaceuticals, the Philadelphia College of Pharmacy and Science has recently initiated instructional and research programs in its pharmacy curriculum. It is the objective of the college to present instruction on the formulation and packaging of aerosol preparations. Indeed it is very likely that one day in the near future aerosols may be utilized as prescription dosage forms and will be compounded by the pharmacist. The graduate students at the college are actively engaged in physical and chemical studies on medicinal - vehicle - propellant systems and in programs to determine the feasibility of administering different classes of drugs in the form of aerosols. Such programs will no doubt be incorporated in the instructional and research programs

Table II. Market Value of Pharmaceuticals With Possible Aerosol Applications

(In Millions of Dollars)

	total	Ethical	Proprietary
Topical analgesics	30	10	20
Topical anesthetics	2	1.5	0.5
Topical antiseptics	15	12	3
Topical antibiotics	7	6	1
Burn remedies	8	2.5	5.5
Steroid hormones	10	10	0
Fungicides	6	4	2
Nasal preparations	18	15	3
Ear preparations	6	5	1
Throat preparations	13	11	2
Vaginal preparations	13	13	0
Rectal preparations	12	5	7
Others*	50	35	15
Total	190	130	60

* Include dental products, a large number of possible inhalation products, etc.

Here are the facts about BARECO'S

NEW PETRONAUBA H WAX

made from a selected fraction of Fischer-Tropsch Synthesized Wax

Out of the laboratories of the Bareco Wax Company comes this exciting news of a brand new member of the Bareco family of waxes.

Petronauba H, unlike other Bareco emulsifiable waxes, is made by oxidizing a selected fraction of Fischer-Tropsch Wax. The result is a wax that is extremely pure, clean and uniform —and one that features great ease of emulsification, brilliant gloss, unique hardness, and high compatibility. Bareco Petronauba H can be formulated to produce excellent rebuffable "dry bright" polishes having brilliant luster, high slip resistance and leveling properties.

NOTE THESE PETRONAUBA H SPECIFICATIONS

Melting Point	195° F. Min.
Penetration @ 77° F.	1/3
Color	Yellow (4 NPA Max.)
Acid Number	15/25
Saponification Number	50/60
Viscosity @ 210° F.	175 max.

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in other colleges of pharmacy.

The aerosol industry, for its own benefit should do all it can to stimulate study and research in pharmaceutical aerosols. This it may do by contacting pharmaceutical manufacturers. It is equally important that the aerosol industry should stimulate basic researches in colleges of pharmacy by personal contacts,' equipment and supply contributions and financial support of research programs. In this way, basic data of importance to the pharmaceutical industry may be obtained and published. This will result in a stimulation of aerosol product development researches.

Summary

AN analysis of the types of pharmaceuticals which may be used effectively as aerosol dosage forms in the near future reveals a market of at least $190,000,000. With the aid of imaginative research and development programs and effective educational campaigns, there is every reason to believe that a good portion of this market can be represented by aerosol products within the next few years.

Among the types of preparations for which aerosol applications either have been found or will be found are the following: dermatologicals, such as analgesics, anesthetics, anti-pruritics, antibacterials, burn remedies, emollients, anti-inflammatories and, fungicides; spray bandages, ear, nose and throat preparations, dental preparations, rectal and vaginal preparations and inhalation products. The latter group of products are the ones which appear the most interesting to pharmaceutical manufacturers at present. Basic research on the localization site of various medicaments inhaled as aerosols and studies on this type of drugs which are absorbed into the blood stream when administered as inhalation aerosols will open many avenues for the development of pharmaceutical aerosol dosage forms.

Pressure packagers should take cognizance of the potential for pharmaceutical aerosols.

Analysis of ABS

(*From Page* 44)

CALCULATIONS:

$$\frac{\text{Weight of Sodium Tartrate (Step 1)} \times 0.1566}{\text{ml Karl Fischer Reagent (Step 3)}} = \text{Grams } H_2O \text{ equivalent to 1 ml of Karl Fischer Reagent}$$

$$\frac{(\text{ml Karl Fischer Reagent (Step 3)} - \text{ml Karl Fischer Reagent (Step 4)}) \times \text{Grams } H_2O \text{ equivalent to 1 ml of Karl Fischer Reagent} \times 100}{\text{Weight of Sample (Step 1)}} = \%\ H_2O$$

The intra laboratory precision (95% limits) for simultaneous duplicate determinations by one analyst is ±0.22% at a moisture level of 70%. Overall precision (intra laboratory) is statistically estimated (95% limits) to be ±0.17% at a moisture level of 70%.

Literature

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New Soap Germicide

(*From Page* 36)

be high both *in vitro* and *in vivo* by accepted test procedures. Activity against gram positive cocci is in the range of 1:30 million. Skin degerming activity of 2 per cent TCC is significantly better than that of equal amounts of bithionol or hexachlorophene. The number of resident bacteria on the skin is decreased by 96.6-98.6 per cent as calculated by the method described.

The color stability of TCC enables it to be incorporated into skin care products without danger that discoloration will affect the products sales appeal.

TCC's almost complete lack of toxicity furnishes ready assurance of the safety of this product for incorporation into topically applied preparations.

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—★—

New Liquid Cleaner

A new liquid cleaner for use on floors, walls, tile, woodwork, metals and upholstery was introduced recently by George Stearns Chemical Corp., Madison, Wis. Tradenamed "GS 77," the product does not contain soap. It is claimed to be effective for wax stripping. "GS-77," may be obtained in packages of four, one-gallon containers and five, 10, 30 and 55-gallon drums.

Table V. Comparative Data on Bacteriostatic Soaps on 12th Day

Compound, %		No. of Subjects	Log Mean	Most Probable Reduction %	95% Confidence Limit of % Reduction
TCC	2	25	1.5386	97.8	96.6-98.6
Bithionol	22	18	1.8534	95.5	92.4-97.3
Hexachlorophene	2	17	1.9797	94.1	89.7-96.5
TCC	1	11	2.1168	91.7	83.9-95.8
Bithionol	1	18	2.1818	90.4	83.8-94.3
TCC	0.5	7	2.2567	88.5	73.4-95.1
Hexachlorophene	1	17	2.5858	75.6	58.4-85.8

Standard error = 0.48

Why Du Pont's Versatile 90% Methoxychlor (OIL CONCENTRATE) Should be Included in Your Aerosol and Oil Spray Insecticide Formulations

1. When methoxychlor is combined with pyrethrins and piperonyl butoxide, the result is fast knockdown and high kill! This combination is extremely effective against flying insects and is also a potent contact killer of crawling insects.

2. Methoxychlor in combination with allethrins, synergist 264 and isothiocyanates contributes fast action with good middle and late knockdown plus high kill. These combinations give effectiveness and economy!

3. Methoxychlor, when added to synergised pyrethrins, extends activity against garden insects.

4. Now, with the discovery of a new property, methoxychlor is actively synergized by Sesoxane. This combination alone or with other knockdown agents will extend activity still further against roaches and ants, granary insects, black carpet beetles and even aphids and mites.

We would like to discuss your formulation plans with you. Write the Du Pont Grasselli District Office nearest you.

Palo Alto, California . . . . . 701 Welch Road
Atlanta 8, Georgia . . . . . 739 W. Peachtree St.
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Packaging...

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Automotive Chemicals
Cleaners
Detergents
Deodorants
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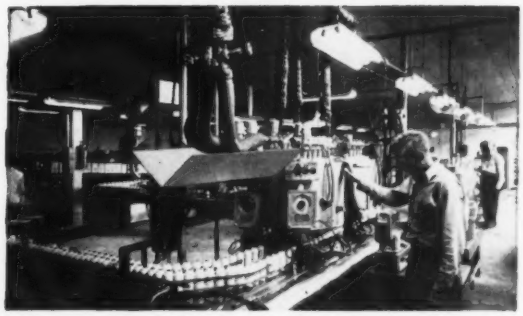
Floor Products
Insecticides
Laundry Bleach
Metal Cleaners
Moth Products
Polishes
Shampoos
Shave Products
Soaps
Liquid Starch
Toiletries
and other
Chemical Specialties

A market for over 28 billion packages annually

Novel aerosol product is "Nu-Glo" spray shoe dressing announced recently by Timely Products Corp., New York. Packed in "tall" seven ounce can item retails for 98¢.

Put *Your Product* Into These Pictures

Experts on Sales, Production and Testing reach a joint decision on the adaptability of a product to packaging in the modern way.



High-speed filling techniques keep supplies of your packaged products ahead of demand.

Because consumers are increasingly concerned with convenience and ease-of-use, aerosol and pressurized packaging is boosting sales for hundreds of products... from insecticides to hair lacquers... from perfumes to mothproofers... from shampoos to hand lotions... from deodorants to shaving lathers.

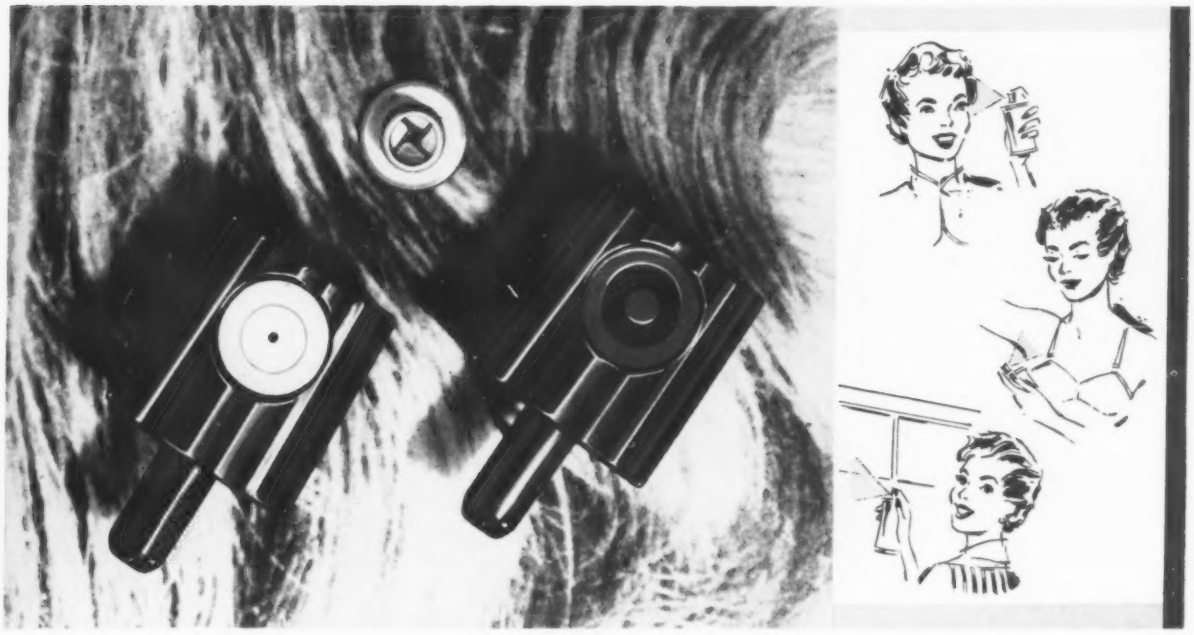
Let us test your product to determine its adaptability to packaging the modern way. We'll do the research in our modern laboratory at no expense or obligation to you. Then we can sit down with you for a frank discussion of exactly what facilities we have to offer in production, quality control, storage and shipping.

To put your product into these pictures, write, wire or 'phone ... you'll find it worth your while.

PETERSON
Filling and Packaging Co.
HEGELER LANE • DANVILLE, ILLINOIS

NEWMAN-GREEN CREATES NEW BREAK-UP VALVE FOR MORE EFFICIENT, MISTIER SPRAY PATTERNS

New Aerosol Valve Is Ideal For Dependable Operation With Hair Lacquers, Colognes, Personal Deodorants, & Window Cleaners



The new valve head designed by Newman-Green offers you the most efficient mechanical break-up spray available for a variety of applications. This new aerosol valve gives smooth and dependable operation in use with hair lacquer, cologne, personal deodorant, window cleaner and other low pressure formulations. It provides consistent and uniform spray patterns at all times.

As is the case with all Newman-Green valves, the basic valve unit has not been changed. Only the spray head is new. The new model gives a fine atomization that utilizes low pressure products to the fullest. It eliminates excessive volume during use, keeps spray light, mistier and very effective in use.

For all kinds of designing, engineering, and manufacturing of aerosol valves, come to Newman-Green. We take pride in helping you produce even better aerosol products for today and the future.

Newman-Green offers you a wide selection of spray heads in a variety of colors. All are interchangeable in seconds.

Newman-Green, Inc.
151 Interstate Road
Addison, Illinois

Please send me your price schedule and free valve samples.

Name_____ Title_____

Company_____ Address_____

City_____ State (Country)_____

Valve Application_____

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

151 Interstate Road, Addison, Illinois

EXCITEMENT!

that's the word for

Wrisley's

new, crystal-clear

Gaiety Bubble Bath packages

by CELLU-CRAFT

FIRST AWARD!

1957 NATIONAL FLEXIBLE PACKAGING COMPETITION

Pharmaceuticals, Drugs, Cosmetics & Chemicals Classification.

PROBLEM: WRISLEY needed a package that would: a) protect the fragrance and texture of its bubble bath powder; and, b) sparkle with eye-attracting sales appeal.

SOLUTION: Call in Cellu-Craft to develop the package.

RESULT: Excellent protection of product achieved by careful selection and treatment of the proper film. *Permanently* sparkling colors were achieved with special inks, specially treated.

RECOMMENDED: You're in the best company when you put Cellu-Craft package development engineers to work for your firm . . . your products . . . and watch sales grow.

CELLU-CRAFT

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Designers, Converters and Color Printers of Flexible Packaging Materials

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Packaging NOTES

Canco Acquires Marathon

American Can Co., New York, last month announced the acquisition of Marathon Corp., Menasha, Wis., producer of pulp, paperboard and fabricated paper products. The merger agreement provides for an exchange of a maximum of 2,970,810 shares of Canco common stock for Marathon common at the rate of eight-tenths of a share of Canco common for each share of Marathon. American also acquires all Marathon's assets and subsidiaries. The latter firm will be operated as a division of Canco.

John Stevens

Roy J. Sund

At the same time, American Can shareholders voted to increase the company's authorized common stock to 25,000,000 from 15,000,000 shares and elected two vice-presidents and five directors, enlarging the board from 15 to 20 members.

The new vice-presidents are John Stevens, formerly president and chairman of Marathon and Roy J. Sund, previously executive vice-president of Marathon. The directors include Mr. Stevens and Mr. Sund, Phillip G. Sayres, a vice-president in Canco's executive department, and Lester Armour and W. E. Buchanan, both Marathon board members.

Mr. Stevens, who will be assigned to executive duties, joined Marathon in 1929 as manager of the Ashland, Wis., plant. In 1946 he became president of its subsidiary, Marathon Paper Mills of Canada, Ltd., and in 1952 became president and later chairman of the board of directors of parent firm.

Mr. Sund, who will serve as vice-president and general manager of the new Marathon Division, was elected a vice-president of Marathon Corp. in 1947. A year later he became a director and in 1956 president of Marathon Paper Mills of Canada, Ltd., after which he was made executive vice-president of the parent company.

Among the newly appointed vice-presidents is Palmer B. M. McConnell, who heads the specialty packaging division.

—★—

Herbert K. Taylor Dies

Herbert K. Taylor, president of George D. Ellis & Sons, Inc., Philadelphia, from 1919 until his retirement, died Dec. 15 at his home in Elkins Park, a suburb of Philadelphia. He was 83 years old. Ellis makes tin cans and metal specialties.

—★—

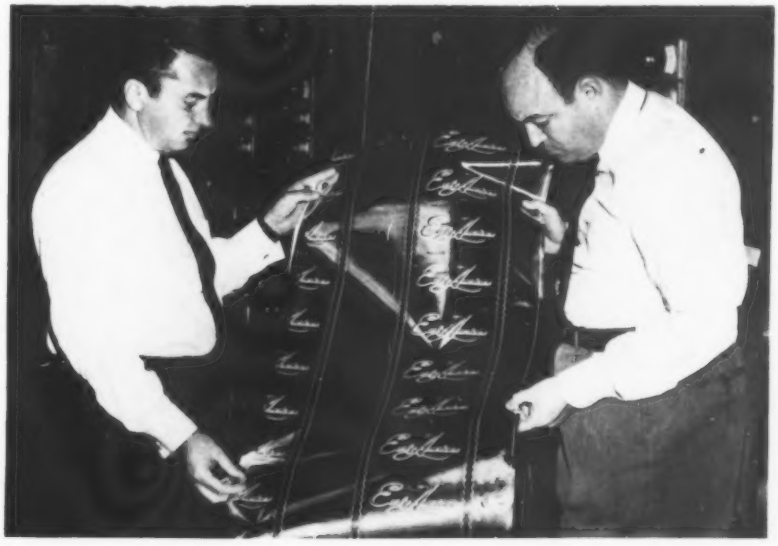
New Metallized Paper

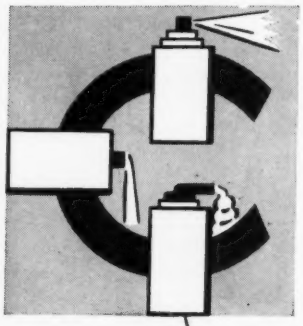
Development of metallized paper for use on can and bottle labels, carton overwraps, or tight wraps for set up boxes, was announced last month by the Shellmar-Betner Flexible Packaging Division of Continental Can Co., Mount Vernon, O.

The product, almost identical to aluminum foil in appearance, will be lower in cost than foil, according to the manufacturer. It is expected to simplify can and bottle labeling operations because its composition permits the adhesive to dry quickly. In addition, the paper is claimed to lend itself well to printing.

Now available in commercially limited amounts, the metal-

Examining printed samples of Continental Can Company's new metallized paper are A. W. Scholp, left, manager of the Shellmar-Betner Division's Mount Vernon, O. plant where the paper will be manufactured, and M. L. Schechtman, who will be in charge of sales of the new product. Metallized paper looks like aluminum foil laminations and is expected to cost less.

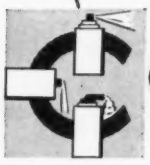




Experience*

in Aerosol Filling and Product Development

* PIONEERS... since 1946



CONTINENTAL
Filling Corporation

MAIN OFFICE: DANVILLE, ILL. • N.Y. OFFICE: 527 LEXINGTON AVE.

COLOGNES • HAIR SPRAYS • INSECTICIDES • DEODORANTS • SHAVE CREAMS • CLEANERS

lized paper was developed for Continental by Dr. Paul Alexander, inventor of the vaporized metal process for high-speed, continuous coating of metals and non-metals by evaporation in a vacuum. The new product is metallized by processing it in a roll in a vacuum chamber where pure aluminum is deposited upon it.

Production equipment to handle the new material is now being installed at Shellmar-Betner's main plant in Mount Vernon. M. L. Schechtman, product sales manager for laminates, has been put in charge of metallized paper sales.

★

Lever Appoints Two

Lee Pevear has been named packaging manager and Charles H. Kritchell promotion services manager of Lever Brothers Co., New York, it was announced recently by Jack Doran, director of the promotion services division. Both positions are newly-created ones in the Lever organization.

Mr. Pevear, formerly packaging coordinator, will assist the company's marketing divisions in the selection and preparation of designs for all product packaging. Mr. Kritchell, previously promotion services copy manager, will supervise Lever's art and copywriting departments. Mr. Pevear joined Lever in 1941, while Mr. Kritchell has been with the company since 1951.

★

Anchor Hocking Names Two

J. M. Collins has been named director of industrial relations for Anchor Hocking Glass Corp., Lancaster, O., it was announced recently by W. B. Snell, Jr., vice-president of manufacturing. Formerly director of labor relations, Mr. Collins will be succeeded in that post by J. L. O'Shea.

Mr. Collins joined the company in 1945 and served for ten yeas as personnel manager of facilities at Connellsville, Pa. He was appointed to his most recent post in 1955. Mr. Shea previously was associated with the Federal Mediation and Conciliation Service.

Greenway Succeeds Dyke

Norman F. Greenway has succeeded George E. Dyke as executive vice-president of Robert Gair Paper Products Group of Continental Can Co., New York. Mr. Dyke, who also is vice-chairman of the board retired Dec. 31. He will continue as a director and in addition, will serve as a consultant.

Norman F. Greenway

George E. Dyke

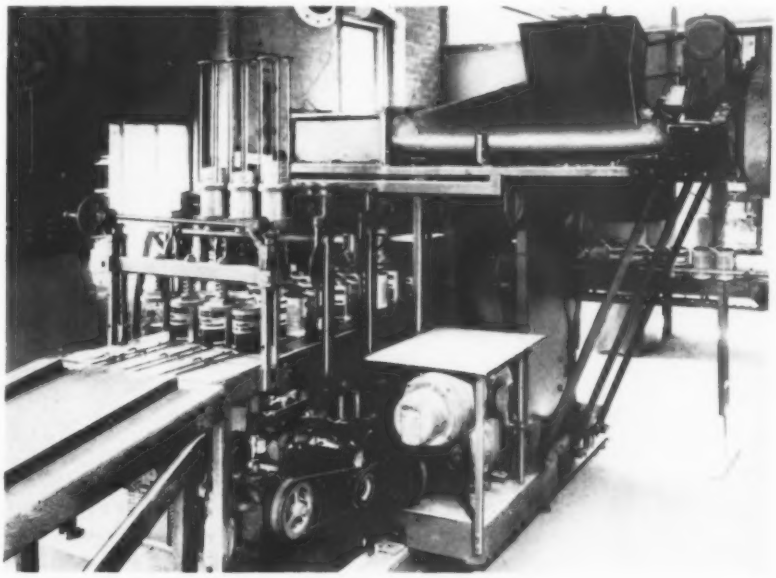
Formerly vice-president and general manager of Continental's boxboard and folding carton division, Mr. Greenway was a senior vice-president and director of Robert Gair Co., New York, before it merged with Continental in 1956. He joined Gair in 1934 and became a vice-president in 1939.

The Robert Gair Group of Continental consists of the boxboard and folding carton division, the fibre drum and corrugated box division, the container board and "Kraft" paper division, and Gair Co. of Canada, Ltd.

New Hope Filling Machine

A new high speed filling machine designed for filling heavy viscous materials into one, three and five pound containers was developed recently by Hope Machine Co., Philadelphia. The unit is said to fill up to 40 one-pound and 10

New high-speed filling machine, manufactured by Hope Machine Co., 9400 State Rd., Philadelphia 14, is designed for filling heavy viscous materials into one, three and five-pound containers. Unit features automatic container feeding and disc placing and lid press devices.



Bracon . . . SQUEEZE-TO-USE PACKAGING

CONVENIENCE PACKAGING . . . *captures a market!*

Now in their second gardening season . . . BRACON squeeze-cans have become a standard for packaging garden insecticides. Why? Because consumers find them easier to use, more reliable, compact . . . producers realize they cost less, add prestige and beauty to their line.

BRACON squeeze-cans are pliable polyethylene cylinders with metal tops and bottoms . . . permanent multi-color printing. They're stackable . . . often they're refillable. Always lightweight . . . non-breakable and completely functional.

For example, these garden dust containers work equally well when aimed up or down. Simply squeeze . . . WHOOF, a cloud of dust envelops leaves and petals. Other squeeze-cans are designed for controlled dispensing of syrups, sauces, liquid detergents, tire cleaners, air fresheners, etc.

Over 400 food, drug, cosmetic and household products are being packed in BRACON plastic tubes, bottles and cans. Let us simplify your merchandising efforts with squeeze-to-use packaging!

BRADLEY CONTAINER CORPORATION

A SUBSIDIARY OF AMERICAN CAN COMPANY

Maynard, Mass. — *New York, Chicago, Los Angeles, Toronto*

five-pound cans per minute. Changeover from one to three or five-pound cans may be accomplished in 30 to 40 minutes, according to the manufacturer. The machine features three filling valves, an automatic feeding belt and an automatic lid dispenser.

—★—

New Wilco Brochure

A new, illustrated, 12-page brochure describing packaging facilities of its Los Angeles plant, was issued recently by Wilco Co., contract packagers, 4425 Bandini Blvd., Los Angeles 23. The bulletin contains complete data on production equipment, including automatic and semi-automatic filling lines and blending facilities. Also included is information on the plant's research and quality control laboratories and storage areas. Copies of the brochure may be obtained from the company.

—★—

Monroe-Danford Moves

Monroe-Danford & Co., sales representatives for packaging firms supplying materials and providing services for the cosmetic and household specialty trade, has moved to new and larger quarters at 50 48th St., Weehawken, N. J. The company formerly was located in Lincoln Park, N. J.

At the same time, the firm also announced that it recently has been granted a charter of incorporation under New Jersey state laws. For the past two years it had operated as a partnership. Donald M. Shaw will serve as president and Maxwell D. Smart as secretary-treasurer.

—★—

Container Corp. Expands

Plans for construction of a 52,700 square foot addition to its Valley Forge folding carton plant, was announced recently by Container Corp. of America. The unit is located in Oaks, Pa. The new one-story building will join the firm's manufacturing plant, which was built in 1953, and will be used as a storage area. It is equipped with loading docks for 10 trucks.

New quarters of Kiwi Coders Corp., located at 4027 North Kedzie Ave., Chicago. Company makes code dating and marking equipment.

Kiwi Coders Corp. Moves

Kiwi Coders Corp., Chicago, last month moved to new and larger quarters at 4027 North Kedzie Ave., in that city. The company manufactures code dating and marking equipment. Kiwi previously was located at 3804 North Clark St.

★

Brockway Sales Higher

Brockway Glass Co., Brockway, Pa., recently reported an increase in sales and earnings for the first nine months of 1957. Net sales totaled $31,713,522 as compared with $28,062,976 in the corresponding period of 1956. Net income amounted to $1,618,819, equal to share earnings of $3.31. This compared with $1,440,000 and $2.93 for the similar period of the preceding year.

★

New Continental Line

Square slip cover cans designed for simplified shelf-stacking have been developed by Continental Can Co., New York, it was announced recently. The new three-inch square container features a grooved lid for stacking the base of one can on the lid of another. First use of the product will be by Shur-Gloss Manufacturing Co., Chicago, for packaging its "Wonder-Wash" concentrated car wash.

★

Record Knox Sales

Knox Glass, Inc., Knox, Pa., recently reported record sales during 1957. Sales totaled $32,699,145, an increase of eight per cent from $30,242,988, in 1956. Net income amounted to $814,742, equal to share earnings of $7.22. This compared with $878,097 and $7.78 the previous year. V. T. Norton, board chairman and Dr. A. W. Wishart, president, attributed the decline in net income to increased taxes.

★

Collapsible Tube Output

The Collapsible Tube Manufacturers Council recently reported that output of collapsible metal tubes in 1957 appears to have set a record. Shipments in the first 10 months of the year totaled 916,459,488 tubes, an increase of 3.6 per cent over the similar 1956 period. Total shipments of the tubes, which were used to package shaving creams, cosmetics and related materials, last year was 1,035,863,280 units.

★

John E. Ferguson Dies

John E. Ferguson, 71, former chief engineer of Risdon Manufacturing Co., Naugatuck, Conn., manufacturers of aerosol valves, died Dec. 21 at his home in Southbury, Conn., after a long illness. Prior to joining Risdon, he served as vice-president of Bridgeport Brass Co., Bridgeport, Conn., for 15 years. He also was vice-president of Ceso Co., Providence, R. I. Surviving are his widow, two daughters, Mrs. Harold Shackleton and Mrs. Arthur Dager, and three granddaughters.

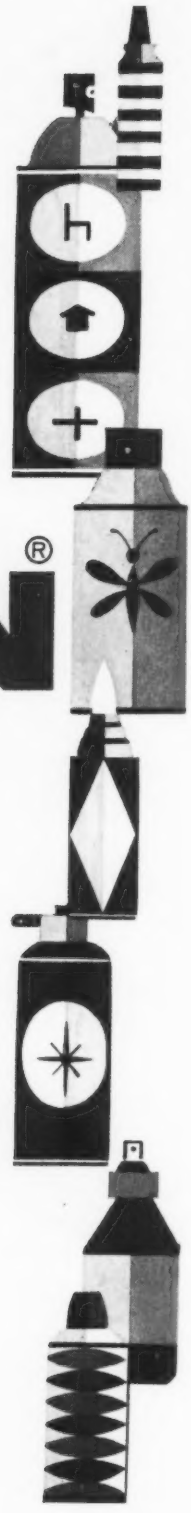
Stackability is one of the features of new square slip cover cans made by Continental Can Co., New York, and adopted recently by Shur-Gloss Manufacturing Co., Chicago, for its car washing product, "Wonder-Wash."

CONCENTRATED POWDER CAR WASH
SHUR WONDER-WASH
SAFE AS WATER TO AUTOMOTIVE FINISHES
SELF DRYING - NO WIPING - NO CHAMOISING
LEAVES NO STREAKS OR SPOTS
FAST - EFFICIENT - ECONOMICAL
CONTENTS SUFFICIENT FOR 24 CAR WASHES

THE KEY TO MODERN LIVING...

Aerosol packaging with...

ISOTRON®



You'll find that modern ISOTRON propellents from Pennsalt can help you to give new life to your established products, and to create new ones.

You'll get highest purity, stability and economy too. And with good reason—aerosol propellents owe their stability to fluorine, and Pennsalt has *specialized* in fluorine research and production for over 40 years.

Why not investigate your aerosol opportunities today? Call or write Pennsalt for individual technical consultation on your formula and production problems. Our specialized assistance has helped many manufacturers avoid problems, improve consumer acceptance and produce economically.

And for experienced production, contact any of the leading contract loaders who use ISOTRON propellents. We'll be glad to send you the name of a qualified loader near you.

Pennsalt Chemicals
ESTABLISHED 1850

ISOTRON Department 560
PENNSALT CHEMICALS CORPORATION
Three Penn Center, Philadelphia 2, Pa.

What's New?

A new floor display stand, introduced recently by the plant food division of Swift & Co., Chicago, to promote its "End-o-" line of garden products, stands six feet high, occupies four square feet of floor space and is capable of holding more than 400 pounds in the "bin" area. Products featured in the merchandiser include "End-o-Weed" and "End-o-Pest" aerosol sprays and instant "Vigoro." Both aerosols are filled by Peterson Filling and Packaging Co., Danville, Ill. Protected at the base by a layer of paraffin, the stand is furnished free with orders of seven or more cases of Swift's garden products.

"Glass Gloss," Bon Ami Co.'s glass and general purpose hard surface cleaner, is now packaged in new dome style cans of Continental Can Co., New York. The product can also be used for cleaning mirrors, windows, enamels and bright metals. "Glass Gloss," which will be marketed nationally through chain and grocery stores, is being filled by American Oil Supply Co., Newark, N.J.

Development of a new product for cleaning and polishing bars, counters, table tops, and furniture has been announced by Arrow Chemical Products, Inc., Detroit. Called "Bar Topper," the polish is a concentrated cream type formulation that can be used on wood, "Formica," leatherette, ceramic tile, enamel, linoleum and all varnished surfaces. Available in quart and gallon containers, "Bar Topper" is applied with a damp cloth by rubbing it briskly into a small area and then polishing the surface with a clean dry cloth.

A new line of cleaning products was announced recently by Carters Chemical Corp., Bronx, N. Y. The products, an aluminum cleaner, an auto cleaner and a rust remover, all retail for $1.49 and contain silicone by General Electric Co. The rust remover, an emulsified concentrate, comes in a half-pound can and is claimed to prevent rusting of all metals if applied to the original finish. Contents of each can makes four gallons of solution. Each product is said to be non-toxic, non-imflammable and free of acids and alkalies. The line is backed by a complete point-of-sale promotion package which features all three items.

A new travel kit containing three aerosol purse-size products was introduced last month by Dodge & Olcott, Inc., New York. The package features a hair spray, cologne and a hand lotion, all formulated with D&O fragrances. Containers are manufactured by Peerless Tube Co., Bloomfield, N.J. Valves are by Risdon Manufacturing Co., Naugatuck, Conn. and filling is done by Dodge & Olcott. The package is not offered for sale but was designed for promotional purposes to illustrate the many uses of fragrances in aerosols.

Two new waxes, especially suited for use on light-colored floors, were developed recently by Wyandotte Chemicals Corp., Wyandotte, Mich. Tradenamed "Lumex" and "Raltec," the products may be used on all types of floors and are said to be slip and scuff resistant. "Lumex" contains "Ludox" anti-slip ingredient. Both products come in one and five gallon containers and 30 and 55 gallon drums.

Chas Enterprises, Lemont, Ill., recently announced a new 12-ounce aerosol fire extinguisher for control of electrical, oil, paper, wood, fabric and grease fires. In addition, the product, called "Blaze Out," is suited for drying wet spark plugs, distributors and other electrical wiring. It is claimed to project a stream of 20 feet and retails for $1.50. A sample case of 12 extinguishers packed in Crown "Spra-tainers," and with Precision valves, may be obtained for $15.00 from the manufacturer.

Fine Laboratories, Inc., Freeport, Ill., has introduced a new heavy duty liquid detergent for use in all types of cleaning. Called "S-100," the product may be used for washing dishes, steam cleaning building exteriors, and washing marble, aluminum, vinyl and rubber tiles, stainless steel and windows. In addition, it is suited for washing out paint brushes and rollers and cleaning machinery and oil storage tanks.

A new polish that combines transparent wax, silicones and an anti-static compound has been announced by S. M. Edison Chemical Co., Chicago. Called "Gay," the product is designed for cleaning and polishing furniture, metal, plastic, leather, glass, wood and marble. It is said to leave no haze and to reduce application time to a minimum. "Gay" comes in one gallon cans together with a free eight-ounce filled and refillable plastic dispenser.

Acrolite Products, Inc., West Orange, N.J., recently announced a new odorless protective coating for use on all types of art work. Tradenamed "Odorless Acrolite," the product is said to be non-flammable, wrinkle-proof and non-destructive to tones or colors. Packaged in six, 12 and 16-ounce aerosol containers by American Can Co., New York, "Odorless Acrolite" will be marketed nationally and in Canada through art supply stores. Filling is done by Acrolite Products, while valve is by Aerosol Research Co., Forest Park, Ill.

A new drain cleaner designed for fast dissolving of grease was introduced recently by Crest Mfg. Co., Long Island City, N. Y. Called "Drainite," the product is packaged in a 20-ounce can by National Container Corp., New York. Feature of the package is a flip-top lid designed for easy opening. Containers are packed 24 to a case and are available in minimum lots of 48 cans.

X Laboratories, Inc., New York, has developed a new gasoline additive designed to prevent freezing in the gas line and carburetor. Tradenamed "X Satin" Gas, the product also is said to eliminate gum from the carburetor and inhibit rust from forming in the fuel line. Packaged in a gold, blue and white screw-top 12-ounce container by the Can Division of Crown Cork & Seal Co., Philadelphia, the product retails for 85 cents.

"Stripe," toothpaste by Lever Brothers Co., New York, which emerges from the tube in red and white stripes, is now being marketed in New York, Illinois and Wisconsin. The product previously was test-marketed in Michigan and northern Ohio. The tube and carton designs are new. Containing hexachlorophene, the product comes in large, giant and economy sizes which retail at 31, 53 and 69 cents, respectively. It is available to retailers in two self-shippers—a counter display piece containing one dozen of each size and a floor stand that holds four dozen large, five dozen giant and three dozen economy cartons.

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NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12(a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Esquire — This for hygienic foot spray for use in shoes. Filed Dec. 6, 1955 by Knomark Manufacturing Co., Springfield Gardens, N. Y. Claims use since August, 1955.

Water Shed — This for leather waterproofing spray. Filed Dec. 6, 1955 by Knomark Manufacturing Co., Springfield Gardens, N. Y. Claims use since August, 1955.

P.M.P. — This for insecticides and rodenticides. Filed Jan. 28, 1957 by Donco, Inc., Englewood, Colo. Claims use since Nov. 29, 1956.

Dri-Shamp — This for aerosol shampoo. Filed Aug. 28, 1956 by Lanolin Plus, Inc., Chicago. Claims use since June 4, 1956.

Spee-Dee—This for aerosol insecticides and room deodorants. Filed June 20, 1955 by Demert & Dougherty, Inc., Chicago. Claims use since about May 29, 1952.

Cubetoid—This for insecticide. Filed Oct. 1, 1956 by Whitmire Research Laboratories, Inc., St. Louis. Claims use since Apr. 30, 1956.

Nursery Mist — This for room deodorant. Filed Nov. 29, 1956 by B&C Products, Inc., Upper Darby, Pa. Claims use since about Sept. 14, 1956.

Bes Kin — This for protective coating for tank interiors. Filed June 7, 1956 by Besler Corp., Emeryville, Calif. Claims use since May 1, 1956.

Lucky Lady—This for all-purpose detergent. Filed Feb. 15, 1957 by William O. McGeehie, doing business as Cortez Products Co., Fort Worth, Tex. Claims use since Nov. 1, 1956.

G&C—This for hair shampoo. Filed Mar. 12, 1957 by Chesebrough-Ponds, Inc., New York. Claims use since Jan. 15, 1957.

Pond's Angel — This for hair shampoo. Filed Mar. 29, 1957 by Chesebrough-Ponds, Inc., New York. Claims use since Feb. 4, 1957.

Fleet—This for household detergent. Filed Apr. 4, 1957 by Simoniz Co., Chicago. Claims use since Aug. 24, 1955.

Kersey's Kleen-All — This for jelly form soap. Filed Apr. 16, 1957 by E. M. Kersey, Royston, Ga. Claims use since Aug. 4, 1928.

Kill-Ko—This for rodenticide. Filed Jan. 18, 1957 by Rigo Manufacturing Co., Nashville, Tenn. Claims use since Aug. 7, 1956.

Farmingdale—This for insecticides and weed killers. Filed Feb. 5, 1957 by Farmingdale Garden Laboratories, Inc., Massapequa, N. Y. Claims use since Mar. 15, 1955.

Lam-Kill—This for rodenticide. Filed Mar. 28, 1957 by Mattie Y. Lamb, doing business as Lamb Products Co., Nashville, Tenn. Claims use since July 15, 1950.

Balcom's Weed Butcher—This for weed killer. Filed May 17, 1957 by Balcom Industries, Inc., Greeley, Colo. Claims use since Jan. 10, 1950.

Weladol—This for animal shampoo. Filed Aug. 30, 1956 by West Laboratories, Inc., Long Island City, N. Y. Claims use since Aug. 13, 1956.

Fine Lab—This for liquid car washing detergent. Filed May 9, 1957 by Fine Laboratories, Inc., Freeport, Ill. Claims use since Feb. 7, 1956.

Chevron — This for general household and industrial cleaning compound. Filed May 29, 1957 by Standard Oil Co. of California, San Francisco. Claims use since June 17, 1935.

Reactor — This for radiator flushing compound. Filed May 31, 1957 by Great Products, Inc., Fenton, Mich. Claims use since May 25, 1956.

Eveready—This for automobile cleaner. Filed July 24, 1957 by Union Carbide Corp., New York. Claims use since about Aug. 4, 1957.

Prestone—This for automobile and metal cleaner. Filed July 24, 1957 by Union Carbide Corp., New York. Claims use since about Apr. 4, 1957.

TNT — This for insecticides. Filed Feb. 6, 1957 by Truly Nolen Products, Inc., Miami, Fla. Claims use since Jan. 10, 1957.

Mansfield — This for shaving soap. Filed Nov. 5, 1956 by Bourjois, Inc., New York. Claims use since about Feb. 14, 1936.

Parke's—This for soaps, detergents and household cleaners. Filed May 19, 1955 by L. H. Parke Co., Philadelphia. Claims use since 1941.

Chesebrough-Pond's — This for shampoo. Filed June 11, 1956 by Chesebrough-Pond's, Inc., New York. Claims use since Jan. 20, 1956.

Round The Clock Protection — This for deodorant soap. Filed Sept. 28, 1956 by Armour & Co., Chicago. Claims use since June 1, 1948.

VW—This for all-purpose liquid detergent. Filed Feb. 4, 1957 by Van Wyck Products Co., Pasadena, Calif. Claims use since Jan. 10, 1950.

Mr. Clean — This for sudsing cleaner, cleanser and detergent. Filed June 3, 1957 by Procter & Gamble Co., Cincinnati. Claims use since May 10, 1957.

Friendly Message — This for soap. Filed June 4, 1957 by Alejo Rodriguez, Astoria, N. Y. Claims use since Dec. 10, 1956.

Thermo-Stir—This for hot plate and stirrer for laboratory use. Filed Jan. 8, 1957 by National Electronics Mfg., Inc., Orlando, Fla. Claims use since Apr. 12, 1955.

Extend-R — This for bottle washer. Filed Mar. 21, 1957 by United Chemical Corp. of New England, Providence, R. I. Claims use since Jan. 31, 1957.

CKC — This for home laundering soapless detergent. Filed Apr. 6, 1957 by Sugar Hollow, Ltd., Lodi, N. J. Claims use since November, 1955.

—★—

Cellu-Craft Expands

A new building designed to increase its operating space by 100 per cent recently was constructed by Cellu-Craft Products Corp., New Hyde Park, N. Y., at its plant in that city. The company manufactures flexible packaging materials.

The structure features modern printing, slitting, bag and pouch-making equipment, a new art studio, enlarged departmental offices and warehouse facilities. Construction of the unit was begun last June. Cellu-Craft also operates a branch plant in Addison, Ill.

—★—

Du Pont Adopts Steel Drum

E. I. du Pont de Nemours & Co., Wilmington, Del., recently adopted a 55-gallon steel drum for shipping its hydroxyacetic acid. The new unit, which features a polyethylene bung closure with a small rubber relief valve, holds 550 pounds more material than the wooden barrel it replaces. Hydroxyacetic acid is used in the manufacture of acid detergents and in metal cleaning.

—★—

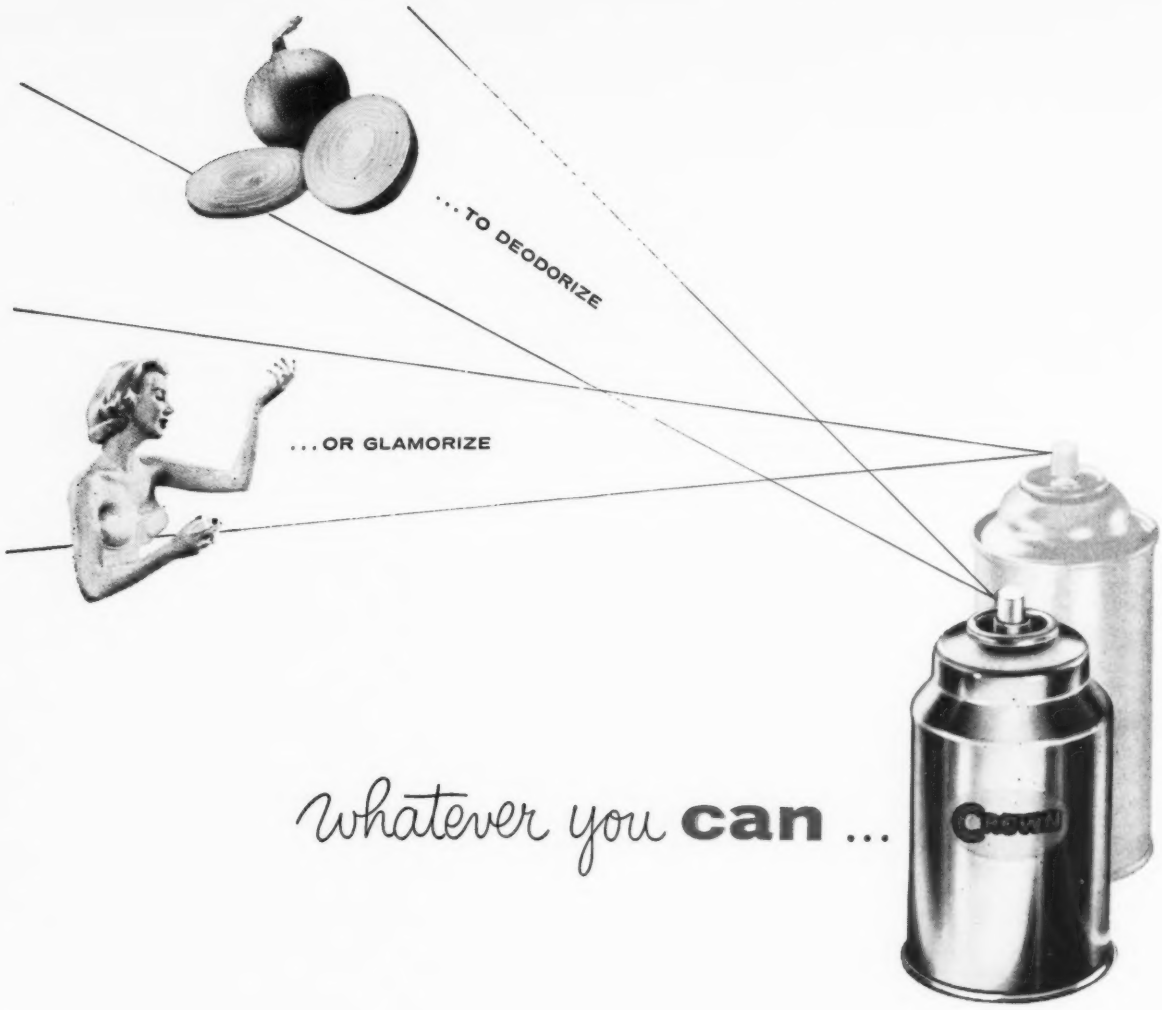
New Amoco Brochure

A new 24-page, fully-illustrated brochure describing its complete line of petrochemicals for the detergent, chemical, paint and plastics industries, was issued recently by Amoco Chemicals Corp., 910 South Michigan Ave., Chicago 80. The booklet also contains product properties and specifications.

—★—

Central Names Hughes

Roy L. Hughes has joined the sales staff of Central Can Co., Chicago, it was announced recently. For the past eight years, Mr. Hughes had been midwest purchasing agent for Sun Chemical Co., Long Island City, N. Y. In his new post, Mr. Hughes will headquarter in Chicago. Central manufactures a complete line of steel pails and drums and seamless and pieced slip cover metal containers.



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MANUFACTURERS OF CLOSURES, CONTAINERS AND MACHINERY

PRESSURE PACKAGING

First European Aerosol Convention

THE first aerosol convention to be held in Europe will meet in mid-April, it was announced recently by a working committee commissioned by industries interested in pressure packaging to formulate a plan for a European aerosol trade association (Interessengemeinschaft). At its organization meeting in Frankfurt am Main, Germany, Nov. 27, 1957, the committee also decided that a monthly 12-page aerosol newsletter was to be published to keep European pressure packagers abreast of world wide developments.

The working committee came into being Oct. 26, when 50 industry delegates convened in Frankfurt upon an invitation by the German trade magazine *Parfumerie und Kosmetik*. Western Germany, Denmark, France, Holland, Switzerland and the United States were represented at this meeting. No invitations were extended to Italy and England.

Hans Hentzel, manager of the publication, opened the meeting by stating its purpose: to create a central body for the advancement of aerosols in Europe by exchange of information and other cooperative efforts. These might include creation of a symbol or mark to represent aerosols on all literature, packages, letter heads, etc.; joint advertising and public relations programs on behalf of all aerosols to serve as groundwork for individual efforts; and the formation of a central counseling service especially for the benefit of newcomers to the field. Mr. Hentzel then suggested formation of the working committee consisting of suppliers, and fillers.

F. H. Hans, resident manager in Frankfurt of Pegasus International Corp., New York, posed three basic questions: Does the pressure packaging market in Europe hold sufficient potentialities to warrant an all-out effort to propagate the aerosol idea? Do the problems of individual manufacturers share a sufficient number of factors to warrant a cooperative effort? What solutions to these problems can be found?

Like all European ventures, economic or otherwise, the tentative aerosol meeting ran into the age-old dilemma: national, regional, "European", or international? The International Aerosol Association, a group founded last September in Zurich, Switzerland, was represented at the Frankfurt meeting. Its president, G. M. Mayer of Precision Valve International, S.A., outlined briefly the aims of IAA and suggested the formation of regional groups to become so-called "adjuncts" to his organization. He emphasized the neutrality and central location of Switzerland, which would make Zurich a good center for any international venture. The congress left the question of cooperation with IAA open for future discussion.

Some of the German delegates were in favor of forming a German section, while representatives of smaller countries, such as the Netherlands wanted a European organization because the small size of their industries did not warrant the formation of national groups. Another plan called for three regional centers: Germany, England, and Italy. But since no delegates had been invited from either Italy or England this question was never resolved.

In the discussion, Dr. Everts, representing J. G. Mouson & Co., one of Germany's foremost toiletries manufacturers, said that the term "aerosol" had a far too technical ring about it. He added that most of the products called aerosols were not genuine aerosols at all. He asked that a more general term be substituted. Furthermore, he said, the word "aerosol" is difficult to pronounce. However, most of the delegates were in favor of retaining the term since it had already found international acceptance and since nobody had come forward with a better word.

There was great difference of opinion whether joint publicity efforts should be made which would concentrate on the conception of "aerosol" in general? While the

(*Turn to Page* 177)

New aerosol spray type sachet announced recently by Sprayway, Inc., Chicago, is trade named "Lavender Spray". Packed in a six - ounce Crown "Spra-tainer", unit retails for $1.25. Twelve cans are packed to a case.

SET SIGHT on your AEROSOL POTENTIAL...

. . . . made even more promising by the use of fragrance materials specially created to lend heavenly, sales-compelling odor appeal to your aerosol packaged product. BUT, bear in mind, there's a lot more to this business of choosing the right aerosol fragrance than meets the eye. *Compatibility* of ingredients is a matter of design—not chance; *appropriateness* – a matter of experience, judgment and good taste. In fact, your choice of fragrance could well be the big difference between limited acceptance and a really stellar sales performance for your aerosol product. So . . . make no mistake in choosing the fragrance for that important job. Make no mistake in choosing the supplier best qualified to develop that fragrance for you.

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for INDUSTRIAL and
TECHNICAL USE

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for PERFUMES, TOILETRIES
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Frangos Joins Powr-Pak

John Frangos has been named technical director of pharmaceuticals and foods for Powr-Pak,

John Frangos

Inc., Bridgeport, Conn., contract aerosol loader, it was announced last month by E. F. Helfer, president. Mr. Frangos comes to Powr-Pak from the General Chemical Division of Allied Chemical & Dye Corp., New York, where he was senior technical service representative for aerosols. In this post, he was in charge of product formulation, and provided technical assistance to the firm's aerosol propellant customers.

Prior to his association with General Chemical, Mr. Frangos was president of Johnli Laboratories, research and development director for Vincent Christina, Inc., and chief chemist for U. S. Vitamin Corp.

★

Aerosol De-Icer Formula

A windshield de-icer formula for aerosol packaging is now freely available from E. I. du Pont de Nemours & Co., Wilmington, Del. Basic ingredients of the formulation are ethylene glycol, isopropyl alcohol and "Freon 12". According to du Pont's preliminary tests the spray has no adverse effects on auto finishes or metal trim. (Any final product would, of course, have to undergo thorough tests in this regard). Sprayed on a clear windshield the product will prevent ice formation, and it is said to melt an ice film one-sixteenth of an inch thick if used on a coated surface.

★

More Nitrous Oxide

Ohio Chemical & Surgical Equipment Co., Madison, Wis., recently began production of nitrous oxide at its two new Cleveland plants. A division of Air Reduction Co., New York, Ohio now has the largest manufacturing capacity in the world for production of nitrous oxide. When operating at full capacity the combined annual output of the two plants will be about 240,000,000 gallons. Nitrous oxide is used in packaging of pressurized products such as whipped cream.

★

Aerosol Food Propellant

A new propellant designed for pressure dispensing of food products will be available in research quantities early this year, according to a recent announcement by E. I. du Pont de Nemours & Co., Wilmington, Del., in its house organ *Aerosol News*. Toxicological investigations stipulated by the U. S. Food and Drug Administration are expected to be completed later this year.

"Freon-C 318" or octafluorocyclobutane, C_4F_8 is a cyclic compound said to exhibit stability outstanding even among the highly stable fluorinated propellants. No deterioration is said to occur under rigorous storage conditions in acid or alkaline systems.

The new propellant shares low water solubility with the rest of the "Freon" series, but in contrast to the other "Freons" has also low oil solubility. In mineral oil, for instance, "C 318" dissolves only to about 14 per cent and even less in oxygenated vegetable oils. Other characteristics are similar to those exhibited by conventional type fluorinated hydrocarbon propellants. Routine design dispensing equipment can therefore be used.

Information on this new pressure packaging development is available from the Freon Products Division of E. I. du Pont de Nemours & Co.

Acquires Bridgeport Div.

Acquisition of Aer * a * sol Division of Bridgeport Brass Co., Bridgeport, Conn., was announced

George L. Schultz

last month by Shulton, Inc., Clifton, N. J., manufacturer of fine chemicals, toiletries and pharmaceuticals. The purchase was a straight cash transaction, which is expected to be consummated about February 1, and does not include real estate, the announcement said.

Commenting on the purchase, George L. Schultz, Shulton president, said that acquisition of the Bridgeport division will enable Shulton to enter the household chemical specialties field with a line of established products, including "Good-Aire" aerosol air refresher and "Aer * a * sol" insecticide. The new aerosol line will be handled by the fine chemicals division of Shulton, and will be distributed through outlets formerly used by Bridgeport.

Bridgeport Brass pioneered in the development of high-pressure aerosol insecticides during World War II in conjunction with the U. S. Department of Agriculture. The firm manufactured one of the first refillable aerosol insecticide containers and made millions of these units during World War II for the Armed Forces.

Bridgeport's aerosol insecticides and "Good-aire" room deodorant were the first post-war products of this nature offered to the consuming public. Following the

war years, Bridgeport's aerosol line was expanded to include products ranging from plastic sprays to a special insect repellent for direct use on human beings.

In addition to marketing its own trade named aerosol products, Bridgeport did contract filling. It will continue this phase of its aerosol operations for the time being.

—★—

Carbide Appoints Leighton

William B. Leighton has been appointed to the fluorocarbons technical service staff of Union Carbide Chemicals Co., New York, it was announced recently by John A. Field, vice-president. In his new post, Mr. Leighton will head the aerosol laboratory and be responsible for its integration with the propellant sales staff. He joined Carbide in 1936 and has done work in design engineering and with solvent recovery systems.

—★—

Black Joins Barr

Robert N. Black has been named to the newly created post of director of engineering for G. Barr and Co., Chicago, custom aerosol loader, it was announced recently. He will supervise engineering activities at Barr's plants in Chicago, New York and Los Angeles.

For the past six years, Mr. Black was a job engineer with Colgate-Palmolive Co., New York, where he designed aerosol filling equipment and supervised its installation. Prior to that, he was associated with Pathe Industries.

Robert N. Black

Stalfort Names Kraus

Richard J. Kraus has been elected to the board of directors of John C. Stalfort & Sons, Inc., Baltimore, it was announced recently. He joined Stalfort in 1948 as an emulsion chemist. In 1952, he was made chief chemist and two years later sales manager. Last year he was named director of sales and technical departments.

Richard J. Kraus

—★—

Du Pont Names Kvalnes

Dr. Donovan E. Kvalnes, technical manager of the Freon Products Division of E. I. du Pont de Nemours & Co., Wilmington, Del., last month received the additional assignment of sales development manager of the division. He succeeds Dr. Edmond G. Young, who has been made manager of development conferences in the marketing research department of the company's development department.

Du Pont also announced that Frank W. Blodgett, chemist on the staff of its Freon products laboratory, and for the past 10 months on temporary assignment as a technical assistant in the division's aerosol section, has been named technical assistant to Dr. Kvalnes on sales development problems.

Fred S. Palmer continues as technical assistant on sales development problems, a position he has held under Dr. Young since May, 1954.

Dr. Kvalnes has been with du Pont since 1934, while Dr. Young joined the company in 1944 as a research chemist. Dr. Blodgett came to du Pont in 1948 as a chemist. Dr. Palmer joined the firm in 1935 in a similar capacity.

Dr. D. E. Kvalnes

—★—

Cite "Jet Spray Bon Ami"

Promotion of "Jet Spray Bon Ami," all-purpose cleanser, was voted one of the eight best new product introductions in the 1956-57 annual poll of retailers conducted by *Food Field Reporter* and *Food Topics*, New York trade publications.

Participating in the poll were 4,513 retailers serving more than 120,000 stores. They considered approximately 16,000 national and regional promotions, including new product introductions, coupon and premium promotions, contests

(*Turn to Page* 131)

Dr. E. G. Young

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These three new Genetron technical manuals contain valuable data for everyone in the aerosol industry who is concerned with the handling, storing or unloading of propellants. Each manual is clear, easy to follow, profusely illustrated with photographs and diagrams . . . designed to help you achieve optimum efficiency and economy in handling Genetron propellants. Mail coupon today for your free copies.

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A STREAM DISPENSER that operates at the touch of a finger. It's non-aerated and it maintains an hermetic seal on the container contents. Normally reactive, volatile or oxidizable products can be kept for long periods of time without refrigeration . . . kept exactly as they were packaged. This makes an ideal container for foods, toiletries and household helps. Ideal because it is an eye-appealing, easy to use package that has proven sales motivation.

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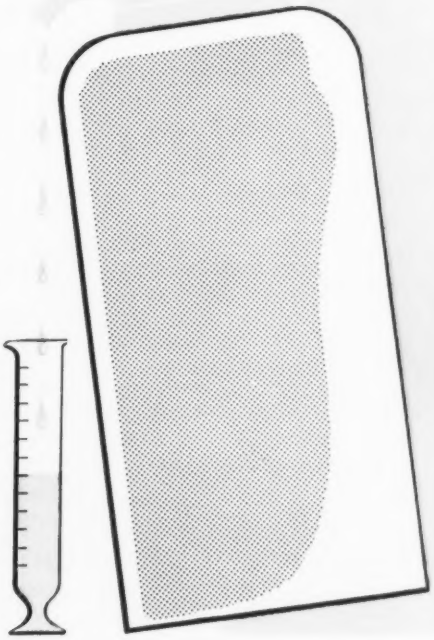

PRECISION VALVE CORPORATION
700 Nepperhan Avenue, Yonkers, N. Y.

and consumer and trade advertising.

Bon Ami Co., New York, introduced "Jet Spray" in the summer of 1956. The product is packaged by Continental Filling Corp., Danville, Ill., in a 14-ounce aerosol container by Continental Can Co., New York.

—★—

New Aerosol Crimper

A new, air-operated, laboratory aerosol crimper, capable of handling both cans and glass containers, was developed recently by Mojonnier Associates, Inc., Franklin Park, Ill. The unit is available with either the can or bottle head. The latter device is suitable for use on standard glass and nylon bottles.

The company also announced that it has available a film, in color and sound, describing cold and pressure fill methods of aerosol packaging. The film is for showing before schools, clubs and other consumer groups. The audio portion of the film is non-technical. The film may be obtained from Mojonnier at 9151 Fullerton Ave., Franklin Park, Ill.

New air-operated laboratory aerosol crimper, capable of handling both cans and glass containers, was developed recently by Mojonnier Associates, Inc., 9151 Fullerton Ave., Franklin Park, Ill.

"Dry" aerosol dispensed sachets, recently developed with a new series of fragrances, by van Ameringen-Haebler, Inc., New York. New product is especially suited for spraying clothing or linens in drawers with varnish or shellac finishes. Company also expects that the new fragrances will find use in alcohol free hair lacquers and in pharmaceutical aerosols in which the use of alcohol is undesirable.

Little Known Aerosols

Of more than 100 different types of pressure packaged products on the market today, most people know no more than a mere handful, according to an article by M. J. Heffernan in the January issue of *Du Pont Magazine*, house organ of E. I. du Pont de Nemours & Co., Wilmington, Del. In a consumer survey recently sponsored by du Pont nearly 2,000 U. S. housewives were queried on their use of 15 specific aerosol products in the pharmaceutical, household and personal products lines.

No matter which of the 15 products the women were questioned about, the majority gave preference to the pressure package over other forms, if the pressure package had been tried. In a number of cases, however, the consumers were not aware that the particular product was available as an aerosol.

Du Pont's list of little known aerosols includes the following types:

adhesive tape remover, antistatic spray, athlete's foot spray, athlete's grip spray (for a non-slip grip), auto tire side wall cleaner, cookware spray (to prevent sticking of food), diaper freshener, dry fly spray for fishermen, dust mop spray, dust repellent for furniture, fur cleaner and lusterizer, furniture wax, garbage can spray (to control odor and insects), girdle spray (to reduce friction), special purpose silicones (including one that prevents grass from sticking to lawn mower), plant growth stimulator, shoe polish, suede refinisher, and water repellent.

A full report of the survey is available from du Pont to manufacturers of potential aerosol products.

—★—

Baer to Precision

Appointment of Leonard S. Baer as eastern sales representative of Precision Valve Corp., Yonkers, N. Y., was announced recently. Since August 1956, Mr. Baer had been eastern sales manager for G. Barr and Co., Chicago custom aerosol loader. Prior to that, he served as eastern sales manager for Powr Pak Co., Bridgeport, Conn. In his new assignment, he will headquarter at the firm's main office in Yonkers.

Leonard S. Baer

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PQ Silicates add excellent dirt-removing properties; they prevent the redeposition of removed soil, they protect metals against corrosive attack . . . all these at lower costs.

Tell us your problems—perhaps we can be helpful. Your inquiries are invited.

Some of the PQ Silicates of interest to detergent manufacturers and formulators.

NAMES	% RATIO	%Na_2O	%SiO_2	BAUME 68°F.
LIQUID SILICATES				
N	$Na_2O.3.22SiO_2$	8.90	28.7	41.0°
RU	$Na_2O:2.4SiO_2$	13.8	33.1	52.0°
C	$Na_2O:2.0SiO_2$	18.0	36.0	59.3°
B-W	$Na_2O:1.60SiO_2$	19.5	31.2	58.5°
Kasil #1	$K_2O:1.250SiO_2$	7.90 (K_2O)	19.8	28.4°
Kasil #6	$K_2O:2.10SiO_2$	12.45 (K_2O)	26.2	40.3°
PQ DRY SILICATES				
G	1:3.22	19.40	62.5	sodium trisilicate
GD	1:2.00	27.50	55.0	sodium disilicate
SS-C Pwd.	1:2.00	32.70	65.4	sodium disilicate
Metso Anhydrous	1:1*	51.00	45.5	sodium metasilicate anhydrous
Metso Granular	1:1*	29.0	28.7	sodium metasilicate pentahydrate
Metso 99	3:2*	36.70	24.2	sodium sesquisilicate hydrated
Metso 200	2:1*	60.80	27.5	sodium orthosilicate concentrated
Kasil SS Pwd.	1:2.50	28.3 (K_2O)	70.7	powdered potassium silicate

*Molecular Ratio

Complete details on PQ Silicates available in Bulletin 17-1.

PQ SOLUBLE SILICATES

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Associates: *Philadelphia Quartz Co. of Calif. Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto, Canada*
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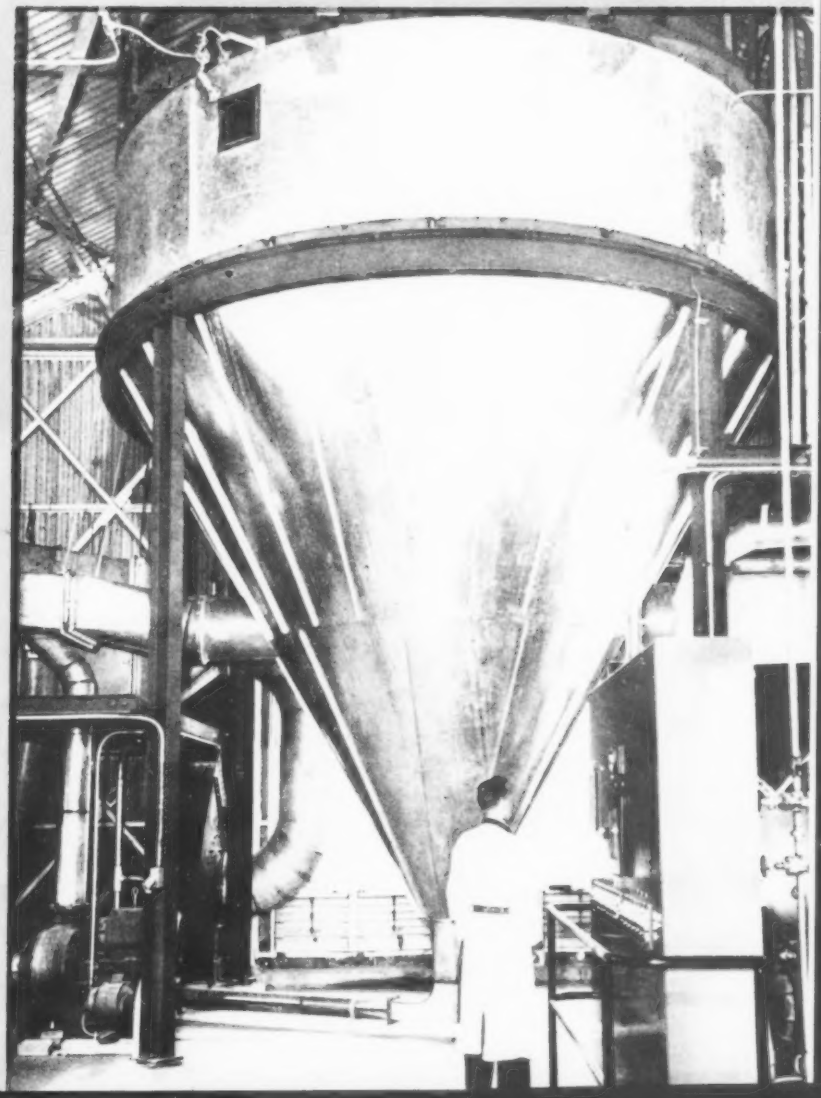
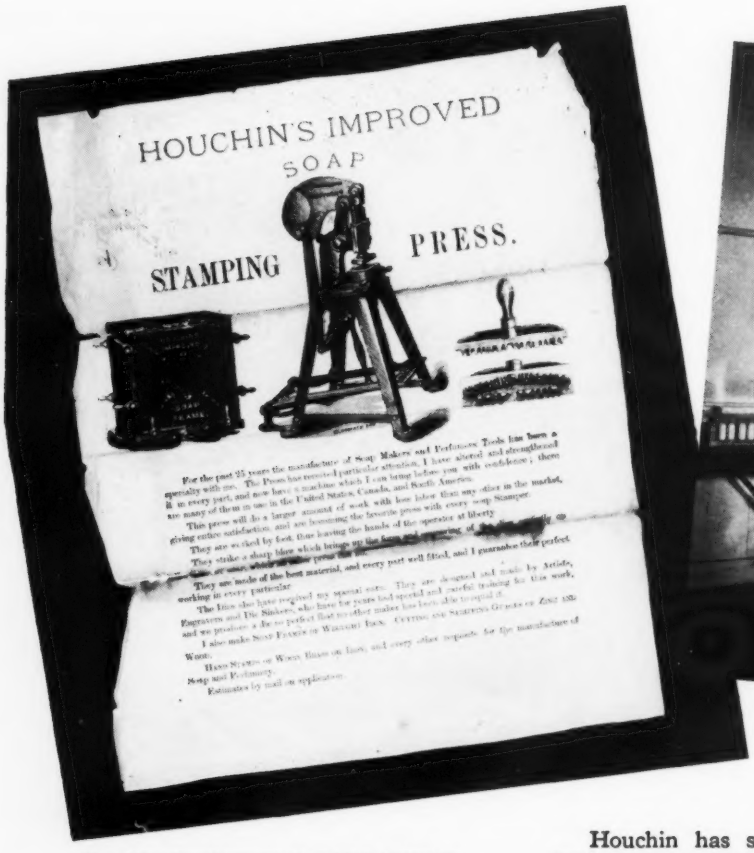


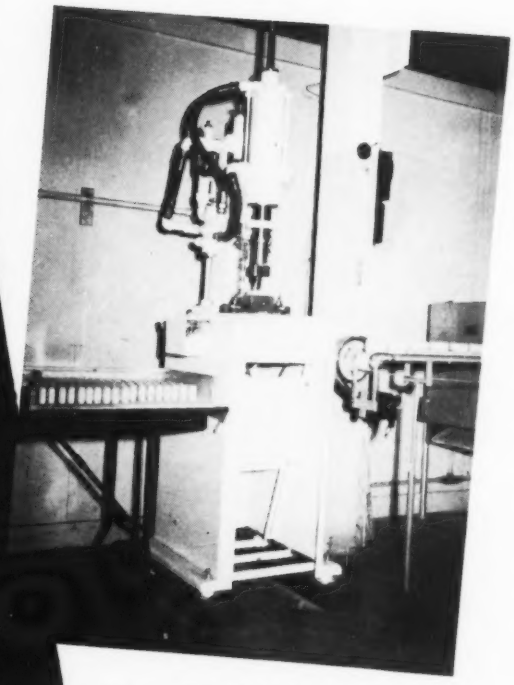
Spray dried perfumes for spray dried soaps and detergents are now being made available in commercial quantities. Emulsion of gum, water and perfume is spray dried. Water goes off, and perfume granules are coated with gum. This prevents volatilization of the perfume. Details of process: on page 135.

HOUCHIN

has made Soap Machines for Over a Century



Houchin advertisement circa 1840, featuring stamping press, soap frame, and hand die.



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Look to Houchin for further revolutionary improvements.

HOUCHIN MACHINERY CO., INC.

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Spray Dried Perfumes

By Robert T. Maleeny

Dodge & Olcott, Inc.
New York

PERFUMING of powdered soaps and synthetic detergents may be simplified and made more effective as the result of the perfection of a new method of producing spray-dried, non-volatile perfumes in powder form. The process, just announced by Dodge & Olcott, Inc., New York perfuming materials firm, consists essentially of spray drying a dispersion of perfume oil in a gum/water solution.

The need for such perfumes designed for use by the soap and detergent industry is beyond doubt. An average soap or detergent powder scented with liquid perfume material commonly loses 50 per cent of its fragrance before it reaches the consumer. Among known case histories is a soap powder which lost 75 per cent of its perfume before it was ever packaged and 100 per cent after three months storage.

To date, no work has been published on the manufacture of non-volatile powdered perfumes. In view of the obvious need for such products and of the effort spent on the development of "locked-in" flavors this omission seems surprising. It may be due to several false starts when techniques evolved for processing flavors were applied to perfumes. Abortive attempts included the formation of a solid sorbitol/oil emulsion, drum drying of oil/gum/water emulsions, and other procedures.

Rather surprisingly, spray drying, the technique which proved successful for both flavor and perfumes, was developed more than 25 years ago. A. Boake, Roberts & Co. in England, said to be the discoverers of the basic process for the manufacture of sealed-in volatiles, introduced powdered flavors in 1932.

The discovery that volatile constituents could be successfully encapsulated was an accident, a by-product of another experiment. In an attempt to spray dry fruit juices, isopropyl alcohol was substituted for the higher-priced ethyl alcohol, formerly used as a preservative, in an effort to reduce costs. In the spray-dried juice, a strong taste of isopropyl alcohol was detected. Fortunately, the significance of this observation was appreciated. The fruit juice program was dropped and further experimentation led to the development of sealed-in flavors. Later, several other companies entered the field both here and abroad and many advances have since been made in product formulation and equipment design.

Despite this early date of discovery and the attention given to spray dried flavors, little if any work was done with perfumes. Perhaps the technical problems involved in creating a spray dried perfume were insurmountable at the time.

The main problem to be overcome was the loss of volatile components. As the taste buds are much less sensitive than the nose, far greater care in drying technique and in formulation must be exercised when perfumes are to be spray dried than when powdered flavors are the goal. One of the materials most easily discerned by the taste buds is strychnine and it cannot be detected at concentrations lower than 0.0016 per cent. Many perfume components can be detected nasally below this level and ethyl mercaptan can be smelled at one part per hundred million. The loss of a minute constituent of a flavor during processing is therefore generally of minor importance, whereas minute loss of a perfume ingredient might radically change the scent. Careful emulsion and perfume formulation and advanced drying techniques have overcome this problem and powdered perfumes can now be successfully produced by spray drying.

Spray Drying

ESSENTIALLY, spray drying is a process whereby the solids are recovered from a solution or slurry by spraying the liquid into heated gases. These evaporate and remove the solvent in such a way as to permit the solids to be reclaimed. The basic spray dryer consists of a drying chamber, a source of hot gases, an atomizer and a collecting unit for recovering the product from exhaust gases. Many variations of the basic unit are available which have such specialized details as product cooling systems and apparatus for solvent recovery.

The heat for the drying operation may be delivered at

Perfuming of soaps, syndets, and cleansers in powder form to gain in convenience and effectiveness by use of inert spray dried scents

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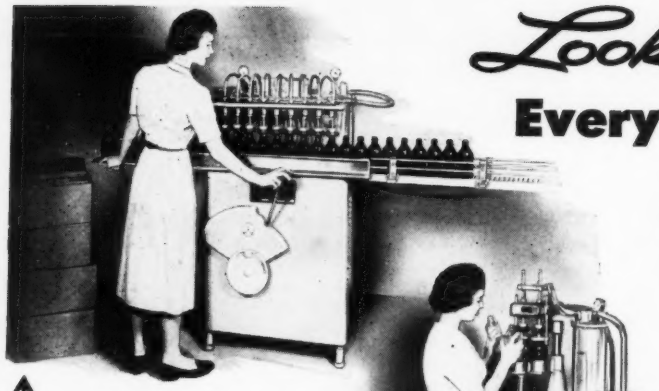

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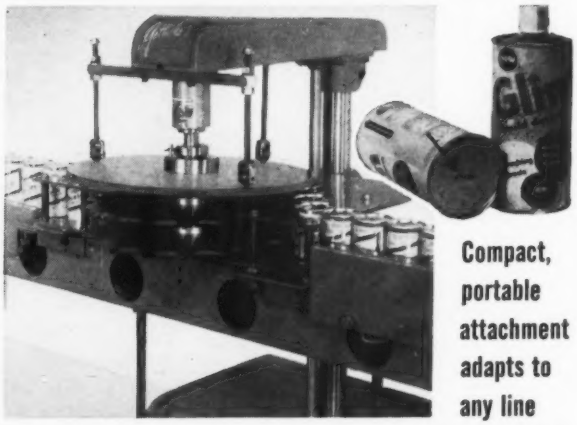

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temperatures ranging from 200°F. to 1400°F. by electricity, steam, gas or fuel oil. The usual range for the drying of perfumes is 300° to 450°F. A preference has been expressed for electricity as a source of heat on the grounds that it delivers the cleanest heat. However, it is relatively expensive and if a good grade of fuel oil is used, there is no danger of contamination.

Most modern spray dryers have a vertical or cylindrical chamber; the spray liquor is introduced near the top of this chamber and the dry product removed at the bottom, either by a mechanical collecting device or by the exhaust gas. Dryers with horizontal chambers are also in use but not too common.

All dryers fall into one of five basic categories as pictured in Figure 1. Any one of the representative designs may be used in the manufacture of spray dried perfumes. However, the design best suited to this operation is the mixed flow dryer. A very efficient machine of this type is manufactured by the NERCO-NIRO Spray Dryer Division of Nichols Engineering & Research Corporation (Figure 2). Least acceptable is the vertical upflow countercurrent type in which the finished product is exposed to most intense heat which is to be avoided at all costs in the case of perfumes, which are extremely heat sensitive.

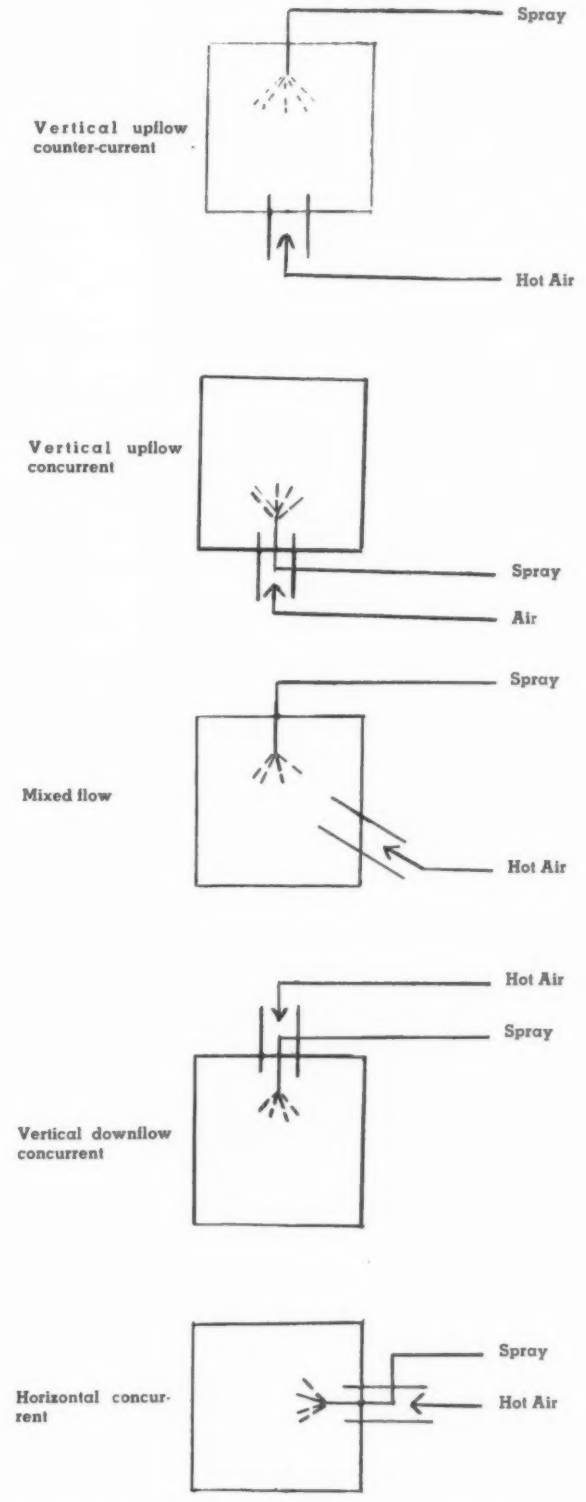
The material to be dried is introduced into the heated chamber in the form of a fine spray. Many of the characteristics of the finished product as well as the continuous and proper operation of the dryer depend upon the mode of forming this spray. Great care should therefore be exercised in the equipment selected for this task.

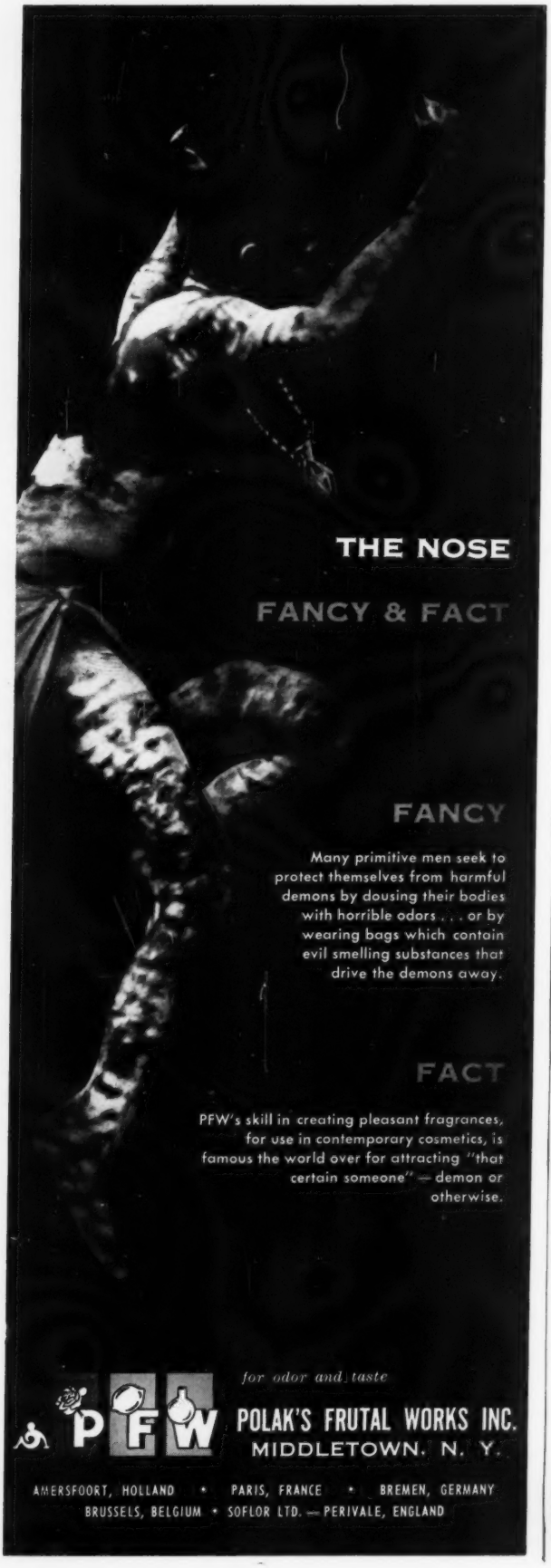
Nozzle Atomization

THREE types of equipment may be used to disperse the spray liquor – the pressure nozzle, the two fluid nozzle, and the centrifugal disk. Since two fluid nozzles generally do not operate efficiently at high capacities, they are not widely used in production dryers.

In pressure nozzles atomization is effected by forcing the spray liquor under high pressure and with a high degree of spin through a small orifice. The amount of pres-

Figure 1




THE NOSE
FANCY & FACT
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Many primitive men seek to protect themselves from harmful demons by dousing their bodies with horrible odors . . . or by wearing bags which contain evil smelling substances that drive the demons away.
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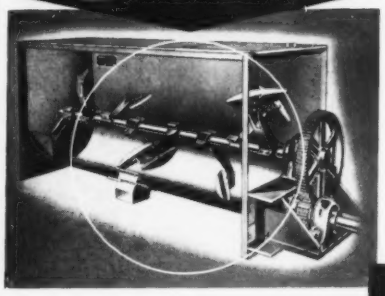

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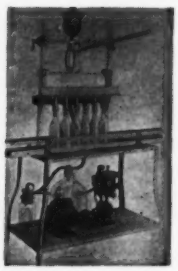

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sure may range from 100 to 10,000 pounds per square inch, while the nozzle orifice may vary from 0.013 to 0.15 inches in diameter. These variables are interdependent and will affect the capacity, the spray characteristics and the properties of the finished powder. It is for this reason that operating conditions in a nozzle dryer must be rigidly controlled. If the pressure is lowered, the spray may become coarser than desired, and if the nozzle orifice becomes clogged or eroded, variation of spray and related product variation will also occur. Erosion can occur even in nozzles equipped with special alloyed or jewelled orifices. Clogging may be caused by coarse particles in the stream or by build up of dry material on the outside. Multiple nozzles may allow a little more latitude in operating conditions. However they will cause increased collisions among the particles resulting in non-uniform particle size. While the nozzle is probably the greatest source of trouble, erosion of the valves in the high pressure pumps needed to deliver the fluid may also present a maintenance problem.

Centrifugal Atomization

CENTRIFUGAL disk atomization is preferable to the use of nozzles for flavor or perfume drying as it will give greater flexibility of operation with more control of product specifications.

In centrifugal atomization, the spray liquor is atomized as it is discharged from the periphery of a rapidly revolving wheel. Numbers of revolutions may vary from 3,000 to 50,000 r.p.m. depending upon the size of the dryer and the particle size desired. The atomizers may be driven by electric motors, steam turbines or compressed air.

The spray liquor is fed to the atomizer by a pump, although in some instances gravity feed is used. Feed rate is not as important as in nozzle atomization. Small variations have little effect upon the degree of atomization and product specifications.

Particle size of any given spray product is determined by the peripheral speed of the disk. Changes in the r.p.m. may effect substantial increases or decreases in particle size. Furthermore, because centrifugal atomization causes less particle collision in the chamber than nozzle spraying, a more uniform end product will be achieved by this method. Since quality and uniformity are of paramount importance in the fragrance field, atomization by revolving disk is generally chosen for the spray drying of perfumes.

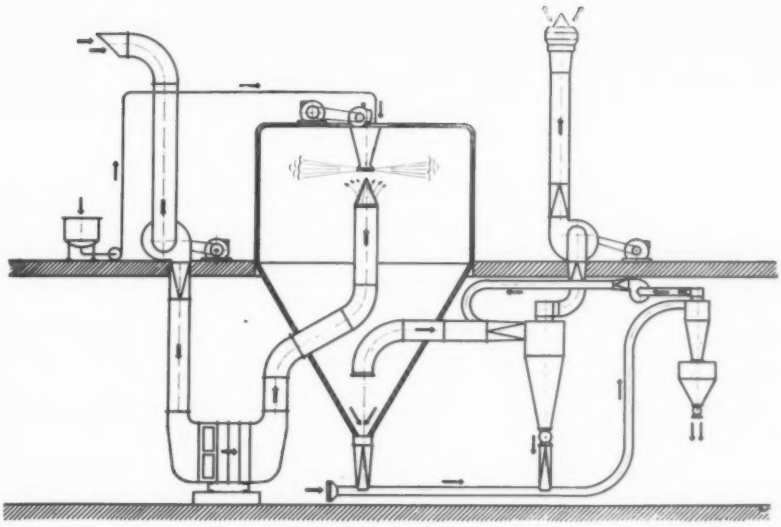

Figure 2

Formulation

PROBABLY the most important single prerequisite for successful spray drying of perfumes is the correct formulation of the perfume emulsion. Basically, it consists of nothing more than a dispersion of perfume oil in a gum-water solution. But the proportions and types of materials used, are critical. Sufficient encapsulating agent must be present to totally and effectively encase the particles of oil during the drying operation. Too little of the gum may result in oil being volatilized in the dryer as a result of incomplete encapsulation, or in formation of a capsule that is too thin to withstand handling, thereby permitting cell rupture and subsequent loss of perfume. Too much of the encasing medium may yield an emulsion that is too viscous, difficult to pump and difficult to dry to exact specifications. The correct encasing medium may be a single gum or a combination of several materials. Used at ideal concentrations it should form an emulsion viscous enough to be stable and sufficiently fluid for ease of handling and drying. Complete and effective capsulation must be ensured. Through much experimental work the correct ratios have been established.

Careful formulation of the perfume oil which is to be subjected to spray drying is another prerequisite of success in addition to appropriate manufacturing techniques, equipment and encapsulating medium. If all these factors are suitably adjusted, perfumes can now be spray dried without loss of volatiles in the drying process and with no more than a minute loss due to cell rupture in handling.

The fact that no loss of highly volatile fractions occurs is apparent to organoleptic observation. It is corroborated by the comparison of infra-red spectrophotometric curves taken of perfume samples before and after spray drying.

To understand why the fragrance survives intact, it is best to assume that each particle of the atomized spray liquor (if

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correctly formulated) constitutes a representative sample of the whole emulsion, namely a droplet of oil completely surrounded by a solution of encapsulating agent in water. As the water is evaporated by the heated gas, the gum is precipitated around the oil and forms an outer shell which prevents volatilization of the perfume. The continuous evaporation of water creates a cooling effect and prevents heat transfer to the interior of the particle. Thus the oil in the particle's core never gets really hot. The inlet or drying temperature of the air in the chamber may be as high as 450 to 500°F., but the average particle never gets hotter than 120°F. and the interior particle temperature is even lower.

Sealed-in perfumes made by this method will deliver the same aroma as the liquids, but are immune to evaporation, polymerization or oxidation.

The spray dried perfume oil may be likened to a liquid perfume sealed in a glass ampule. Both are protected from deleterious effects and both will remain unchanged until the seal is broken. In the case of the spray dried product, this merely means dissolving the particle in water.

Benefits of Dried Scents

THE manufacturer and formulator of powdered detergents, cleansers, soap powders, and other specialties may derive some real benefits from the use of spray dried perfumes. In their dry form these products exhibit very little odor. Their use eliminates almost entirely the strong aura of perfume present in most plants making scented specialties and cuts to a minimum the incidence of contamination and of allergic reactions by the personnel.

Sealed-in perfumes cut out losses by evaporation. The quantity of fragrance added to the final product is not diminished but remains constant throughout the life of the product. Any dry compound, be it detergent, bath salt or whatever will release the exact amount of aroma with which it was originally formulated, regardless of whether it is wetted after six months, a year, two years, or more. This contrasts greatly with the average dry powder perfumed with a liquid, which may have lost all but a trace of its fragrance after three months storage (Figure 3). This comparison is important from an economic point of view. It is proof that powders perfumed with sealed-in scents do not have to be over-perfumed to reach the market with the fragrance level expected by the consumer. Although the dry perfume is more expensive than the liquid, on an oil pound to pound basis, its use may actually bring a saving to the industrial consumer, because he need use less for adequate results.

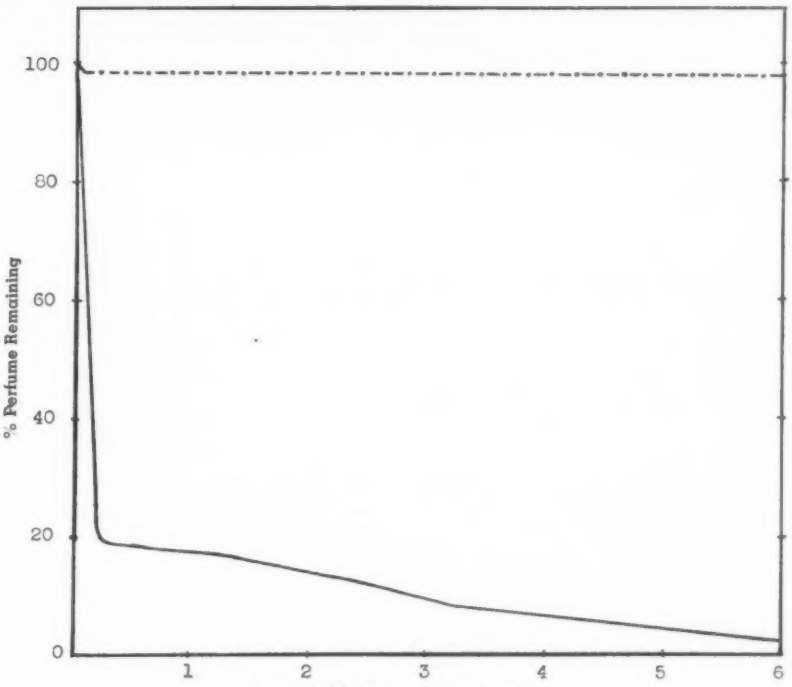
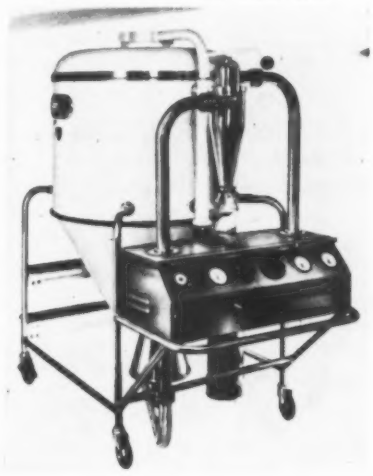


Figure 3. Months storage at 110° F.

—.—.—. **Spray dried perfume** ———— **Liquid perfume**

Figure 5. Laboratory scale drier



Chlorine Type Cleansers

IN ADDITION to the advantages described above, spray dried perfumes offer special benefits to the formulator of chlorine type cleansers and bleaches. Until now the range of perfumes which could be used in such products was confined to materials compatible with ingredients which are harmful to most fragrance materials. The formulator was left with a small choice of compounds most of which did little to mask objectionable odors. Now he can choose from a full range of scents and add appeal to his product, because the perfume oil encapsulated in an inert shell does not come in contact with the cleanser ingredients and all harmful reactions with free chlorine are eliminated.

(Turn to Page 145)

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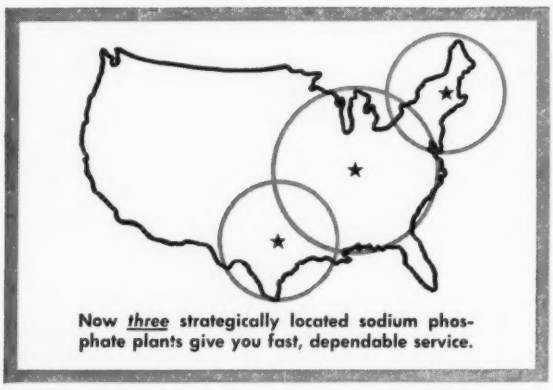

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NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine. MacNair - Dorland Co., 254 W. 31st Street, New York 1, N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be $1.00 per copy.

No. 2,812,284. Oral Detergent Composition and Dentifrice Comprising Same, patented by Judson H. Sanders, Wyoming, O., assignor to Procter & Gamble Co., Cincinnati. Described is a dentifrice having a superior initial sudsing speed and improved flavor qualities and containing between about 0.6% and 3.0% of a mixture of synthetic organic detergents, said mixture being composed of from about 17 to 33% by weight of water-soluble salts of fatty alcohol sulfates containing from 10 to 18 carbon atoms per fatty chain and of from about 83 to 67% by weight of water-soluble salts of fatty acid monoglyceride sulfonates containing from 10 to 18 carbon atoms per fatty chain.

No. 2,813,112. Soap Composition, patented by Victor C. Fusco, Baltimore, Md., and Richard C. Harshman, Kenmore, N.Y., assignors to Olin Mathieson Chemical Corp., Baltimore. The invention consists of a soap composition containing a soap of an aliphatic monocarboxylic acid containing from 12 to 18 carbon atoms and containing as a stabilizer an azine in amount from 0.05 to 1 percent by weight, based upon the weight of the soap.

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$$RNHCH_2CH_2COOR^1$$

in which R is an aliphatic hydrocarbon group containing from 8-22 carbon atoms and R^1 is a lower alkyl group which comprises heating said compound with an aqueous solution of an alkali metal hydroxide having a concentration of at least 15% until hydrolysis is substantially complete.

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Also claimed is a process for co-depositing, on the surface of an article, a sparingly water-soluble silver salt to render said surface lethal to bacteria coming in contact therewith and a substantially water-insoluble salt of a metal other than silver to prevent discoloration of said silver salt, which process consists of wetting the surface of said article with an aqueous solution having dissolved therein a silver salt, a water-soluble, volatile basic nitrogen compound, a portion of which is combined with the silver of said silver salt to form silver ammino cations, a salt which furnishes cations of said substantially water-insoluble salt of said other metal, a salt which furnishes anions capable of forming a silver salt having a solubility in water from 0.00002 to 0.5% by weight, and a salt which furnishes anions of said substantially water-insoluble salt of said other metal; and drying the article so-wetted to co-deposit the sparingly water-soluble silver compound and the substantially water-insoluble salt of said other metal on the surface in tightly adherent, bactericidally active form.

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$$R-\underset{\underset{O}{\|}}{C}-NH-\underset{\underset{NH}{\|}}{C}-NHCN$$

where R is an aliphatic hydrocarbon radical, the said compound being in an amount to lessen the tarnishing action of the polyphosphate.

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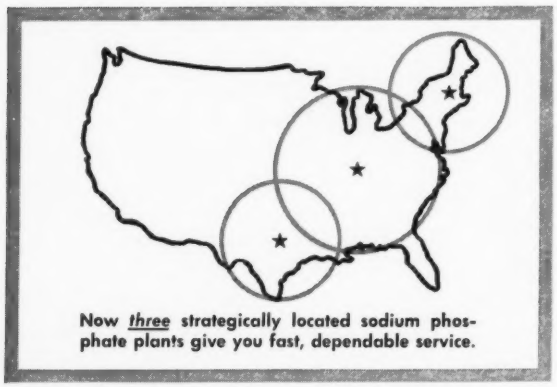

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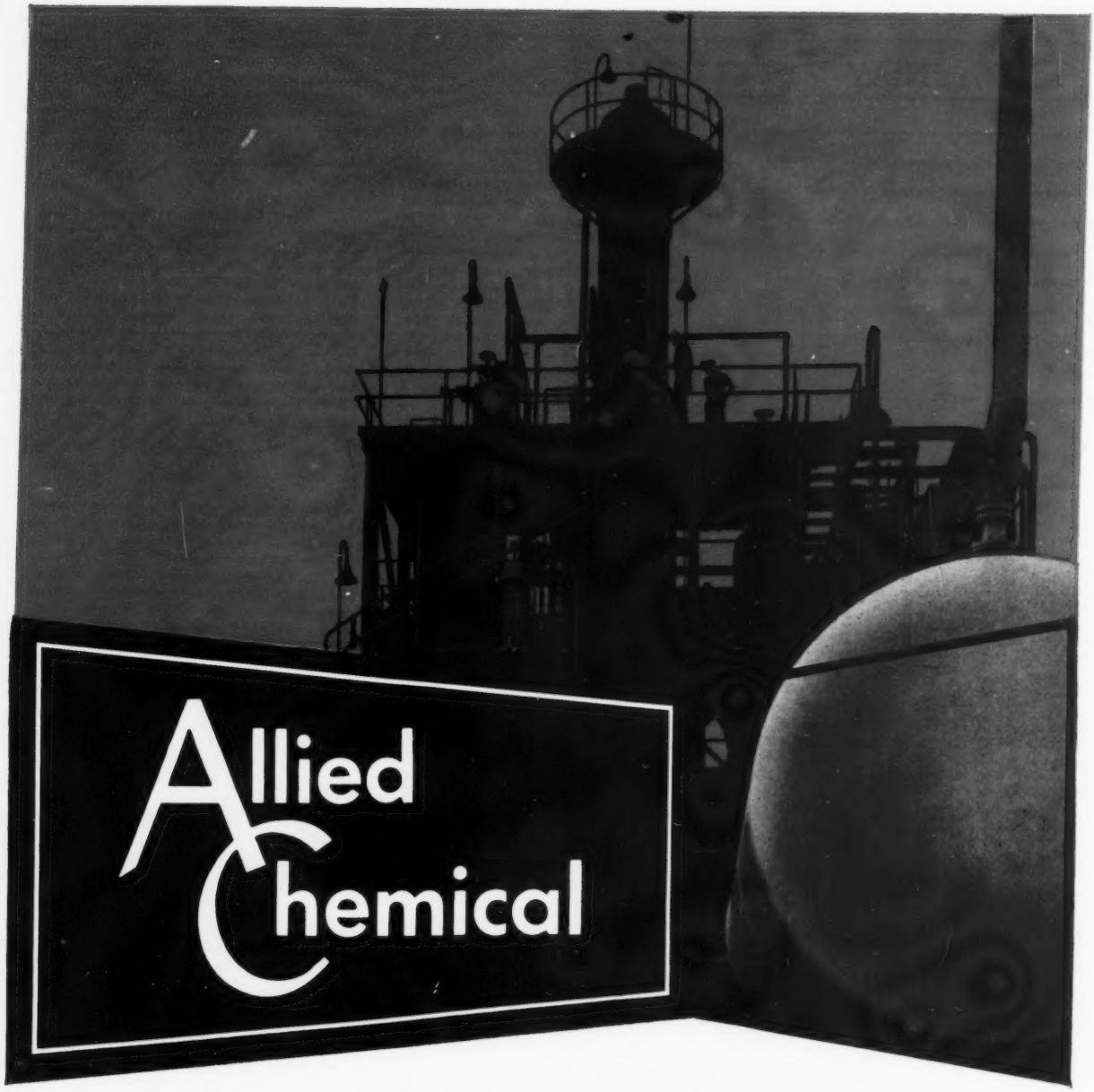

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Products and PROCESSES

Perborates for Detergents

Segregation of sodium perborate tetrahydrate powder from spray dried detergents owing to disparity of particle size is a well known problem. A method has been evolved to increase the particle size of the commercial perborate to approximately that of the coarser detergent. For this purpose sodium perborate tetrahydrate powder is intimately mixed with an aqueous solution of sodium silicate. The water in this solution must not exceed 60 per cent by weight of the sodium perborate tetrahydrate. Then a hygroscopic salt in powder form is added to the mixture, with constant agitation. The agitation is continued until a dry, free flowing powder is obtained. Sufficient salt must be used to convert the entire mass into a dry free flowing state by agitation. British patent 780,592 (1957), Unilever, Ltd., Port Sunlight.

—★—

Foam Stabilizer

A new foam stabilizer and hair softener is available in commercial quantities from Glyco Products Co., New York. "Glycomul" is a fatty alkanolamide, stable at normal temperatures to mild alkalis, acids, and salts. Used in the presence of a weak acid, such as phosphoric, "Glycomul" is suggested as a softener and antistatic agent for use on the hair.

—★—

High Purity Azelaic Acid

High purity azelaic acid is now being produced in pilot plant quantities, it was announced last month by the chemical division of Armour and Co., Chicago. Esters produced from this grade of azelaic acid have been found useful as basic components of high-temperature lubricants. Their high heat stability and anti-corrosion properties may suggest them for other specialty uses. Armour stresses that the compound is in the market development stage.

—★—

Germicidal Detergent

A germicide having detergent properties can be made by first sulfonating a mixture of a phenol and glyceride. The resultant product is then reacted successively with a polyhydric alcohol, with an unsaturated aliphatic aldehyde, and lastly, with a phenol. The final product is claimed to be very effective in a wide pH range. British patent 777,887 (1957) Kay Brothers, Ltd., Reddish near Stockport.

—★—

Safety Clothing Graded

Nine groups of synthetic fabrics and films are evaluated and grouped according to their safety properties, in a six-page booklet published last month by Milburn Co., 3246 East Woodbridge, Detroit 7, makers of "Ply-Garb" protective clothing and "Ply" skin protective compounds and cleaners.

Resistance to acids, alkalies, salts and solvents at varying concentrations are tabulated. Information on fire-resistant, liquid repellant, anti-static, and lint-free properties of the various fabrics is included. Laundering characteristics are given.

Spray Dried Perfumes

(*From Page* 141)

Spray dried perfumes are more easily incorporated into powdered products than liquid fragrance materials. Since they are free flowing powders they blend readily and uniformly with any dry formulation. No segregation occurs even in products of such contrasting particle size as for instance soap flakes.

Due to the lower concentration of perfume oil in encapsulated fragrances small errors in weighing for production are not nearly as critical as in the case of the liquids. Powder form perfumes are usually shipped in polyethylene lined drums which eliminates all danger of bottle breakage. Spilled material does not present an odor problem but can simply be swept up with a broom.

Summary

SPRAY drying in a mixed flow dryer featuring centrifugal atomization is the preferred method for the manufacture of sealed in perfumes. Due to advances in processing technique and formulation these materials are now available in commercial quantities. They have indefinite shelf life, are easy to handle, economical and representative of the liquid perfume used in their manufacture.

The fact that they do not react with free chlorine makes encapsulated perfumes particularly useful to the manufacturer of bleaches and chlorinated cleansers.

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—★—

Enjay Appoints Arnold

Jack Arnold, Jr., has been named manager of the Boston office of Enjay Co., New York, it was announced last month. He will be responsible for the firm's sales activities in New England.

Mr. Arnold joined Enjay in June, 1955 and since that time has served as New England sales representative. Prior to that he was associated with the New Jersey sales division of Esso Standard Oil Co., New York.

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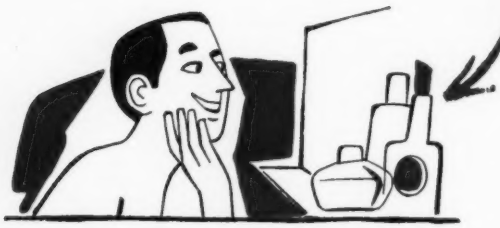

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Deodorant Sticks
Deodorant Colognes
Deodorant Powder
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Baby Powders
Hand Lotions
Face Creams
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Temperature Measurement Devices

INSTRUMENTATION available for the measurement of temperature in the processing industries is covered in an excellent review article entitled "Temperature Measurement in the Chemical Factory" in the Nov. 1957 issue of the British publication *Manufacturing Chemist*, pp. 501-506. The selection of a temperature measuring instrument for a given application depends on the temperature range to be covered, the degree of accuracy required, whether the reading instrument (indicator or recorder) is to be placed at a distance from the point of measurement (panel, control desk, etc.) and whether the reading is to be done in one or several locations.

Liquid-in-glass thermometers are the best known instruments for the measurement of temperature. Relatively simple of construction, they have no mechanism to go wrong, and are usually reliable and inexpensive. However, they may be difficult to read and they cannot be used for remote or distant reading or for recording of temperatures.

The bi-metallic types are easier to read than the liquid-in-glass instrument, cover the same range, but do not permit remote reading.

In expansion or pressure actuated thermometers an expansible medium (a liquid; a liquid and its vapor; or a gas) is confined under pressure in a closed system, so that a change of pressure is produced by a variation in temperature. Basically the instrument consists of a metal bulb or phial connected by a length of capillary tubing with a Bourdon tube. The advantage of these thermometers is that the capillary tube can be up to 150 feet long making remote reading possible.

The air operated temperature transmitter has all the advantages of the expansion type thermometer including safety for remote measurement in the presence of flammable gases and liquids. It has the added advantage of flexibility because the connecting tube can be altered in length and general arrangement, according to current needs and it can be branched for multiple reading or recording.

Electrical resistance thermometers depend for their operation on the fact that the resistance of many materials changes according to the temperature to which they are exposed. This instrument can cover the whole range of the mercury-in-steel type and measure even lower temperatures. In addition, it is possible with an electrical resistance thermometer to measure just a selected span of temperatures.

One of the main advantages of the thermo-electric pyrometer is the possibility of reading the temperature prevailing at a number of points in the plant on one instrument, by means of a multipoint rotary switch. By turning the selector knob, the thermocouple or resistance element at the required point is brought into circuit, and the temperature can be read on the scale.

Accuracy and rapidity of response are said to be the chief merit of potentiometers. Because they indicate a temperature at the opposite end of the scale within less than one second they are frequently employed in automatic scanning systems.

Recorders of various types are described. In many instances the same temperature-sensitive element used for an indicator or recorder can be employed to actuate an automatic temperature controller.

Electric temperature measuring systems are frequently combined with telemetering and monitoring equipment in which automatic scanners are employed. By means of automatic switching systems, the temperature may be displayed in sequence on an indicating instrument, and perhaps typed automatically. Should any reading deviate considerably, visible or audible alarms may be actuated.

The original article gives lucid and concise descriptions of the mechanisms employed by the different types of gauges. The information is extremely useful to anyone interested in production.

—★—

Novel Mixing Device

Routine stirring, preparation of emulsions and solutions, and liquid / solids, and liquid / liquid mixing can be done with a novel type stirring paddle introduced into the United States recently by Palo Laboratory Supplies, Inc., New York. The equipment is made by Plenty & Son, Ltd., Eagle Iron Works, Newbury, England. Palo is the exclusive U. S. distributor. The unit is available in laboratory, semi-industrial, industrial and custom sizes.

Designated "Palo Impelator", the unit consists of several sets of small conical tubes mounted around the periphery of a number of discs, which in turn are fitted to a rotating shaft. One set of discs is located near the bottom of the shaft. One or more are fitted above it and are adjustable up and down the shaft, according to the height of the mixing vessel and other factors involved. The tubes are set at an angle creating controlled upward and downward turbulence. The material which is passed through the rotating tubes impinges on the already moving bulk of the mass and produces a rapid shearing action. The lower set of discs prevents formation of a sediment.

The "Impelator" combines centrifugal force with suction and shearing action and counter-current whirl, which result, it is claimed, in maximum dispersion with minimum particle size. For details write Palo at 81 Reade St., New York 7.

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Book Reviews

History of Chemists' Club

Six Decades of the Chemists' Club, by D. H. Killeffer, published by the Chemists' Club, 52 East 41st Street, New York 17. Cloth bound, pp. 66, price to non-members $5.00.

Founded in 1898 the Chemists' Club recently published a history of its first sixty years to supplement the account by the late Dan Berolzheimer which appeared in 1948 on the occasion of the club's 50th anniversary. The group has grown from an initial membership of 154 to a current roll of 3,234.

The book is not only an account of the club's history and endeavors. It is an intimate and charmingly written sidelight on the adolescence and full growth of the American chemical industry. Its pages are rich in references to men like Chandler, Baekeland, Toch, Bogert, Loeb, and others of equal stature. Drawings by George Hollrock support the text.

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Surfactants for Textiles

Textile Chemicals and Auxiliaries with Special Reference to Surfactants, edited by Henry C. Speel and E. W. K. Schwarz, published by Reinhold Publishing Corp., New York, 1957. Cloth bound, pp. 545, $13.50.

This volume is the second revised and enlarged edition of a text originally published in 1952. The individual chapters are written by authors especially equipped to handle the respective subjects. Part I of the book is devoted to the nature and processing of fabrics; Part II covers raw materials in fabric processing. The second part includes a chapter on surfactants by Kermit D. Longley of Oil Products Co., Chicago, and Emil C. Hansen, Antara Chemicals Division of General Aniline & Film Corp., New York. Giving basic information on surface active agents the chapter opens with the following statement: "The textile industry can take pride in the fact that it has served successively as the cradle for soaps, sulfated oils, and the modern synthetic surfactants."

A chapter entitled "Soap" is authored by Willard M. Bright and Phillip M. Maxwell, research director and assistant research director, respectively, of Lever Brother's Co., New York. Chapters dealing with anionic surfactants and nonionic condensates were written by Henry C. Speel, who also revised and brought up to date the information on cationic finishing agents, originally authored by Robert R. Ackley of Westfield River Paper Co., Russell, Mass. There is a chapter on mothproofing and mothproofing agents by H. Luttringhaus, New York. Much information has been added to these chapters and others in accordance with new developments in materials and techniques.

—★—

New MCA Data Sheet

Publication of a new 16-page booklet providing safety data on benzyl chloride was announced recently by the Manufacturing Chemists' Association, Inc., 1625 Eye St., Northwest, Washington 6, D. C. The brochure contains information on properties, hazards, control, employee safety, fire fighting, handling and storage, cleaning and repair, waste disposal, medical management and first aid. Copies of the bulletin are available from the association for 30 cents each.

—★—

New Monsanto Booklet

A new fully-illustrated, 24-page booklet describing its line of brush control chemicals was published recently by Monsanto Chemical Co., St. Louis. The two color-brochure contains product data on the company's foliage, basal and stump sprays, which are designed for year-around brush and weed control. Also included is a chart listing more than 50 common woody plants and formulations recommended for their control. Chemical properties, reactions and suggested applications of the sprays are also given.

—★—

New PICCO Resin Brochure

A new 12-page brochure describing its complete line of resins was issued recently by Pennsylvania Industrial Chemical Corp., Clairton, Pa. The booklet features charts and graphs showing physical and chemical properties, melt viscosities, compatibilities and solubilities.

—★—

Emulsifier Bulletin

Sole Chemical Corp., Chicago, early this month published a technical bulletin describing "Sole-Onic CDS" brand of diglycol laurate. The oil-soluble surface active agent is employed as a self-emulsifying and defoaming agent. As an emulsifier it is used in polishes, pigment dispersions, and in a number of other industrial specialties. Among its applications as a defoamer is sewage disposal and the manufacture of various protein products.

Technical bulletin No. 1257-1 is available from Sole Chemical at 27 East Munroe Street, Chicago 3.

—★—

ASTM Soap Standards

ASTM Standards on Soaps and Other Detergents, published by the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, 1957. Six by nine inches, paper bound, 180 pages, price $2.75

This compilation includes 17 specifications for soaps and soap products, nine specifications for various alkaline detergents, and 16 methods of analysis for soaps and other detergents. Ten of the standards included are new or recently revised. Definitions of terms are appended.

The material collated in this book represents the work, on a cumulative basis, of the ASTM Committee D-12 on Soaps and other Detergents. The information presented should be of practical value to all who manufacture, formulate, and purchase in quantity cleaning materials and soap.

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CSMA Buyers Guide

The Chemical Specialties Manufacturers Association, Inc., 50 East 41st St., New York 17, last month announced publication of its 1958 buyers guide, "Vendors to the Trade." The guide, in its third edition lists material supplies offered to the trade by CSMA members. It consists of two sections, an alphabetical classified listing of members by products and services and an alphabetical listing of members by companies. The later section also includes a further description of products and services. Both listings are enlarged over last year. The 84-page book, which was sent free to CSMA members, is available from the association.

★

New FMC Bulletin

A new bulletin describing its complete line of carton filling and sealing machinery was issued recently by FMC Packaging Machinery Division of Food Machinery and Chemical Co., Philadelphia. The eight-page booklet provides specifications and applications of all six models of the firm's "Never-stop" line, including the new "EH" model automatic cartoning machine, which is said to carton various sized products at speeds up to 400 per minute. Copies of the bulletin may be obtained from the company, 4900 Summerdale Ave., Philadelphia 24.

Methoxychlor Synergist

(*From Page* 82)

(Table 6). Results of this series of evaluations were encouraging, and, again, demonstrate that "Sesoxane" is a very effective methoxychlor synergist.

Two-spotted Mites and Bean Aphids: Preliminary tests of a "Sesoxane"-methoxychlor contact spray have indicated that "Sesoxane" is also a methoxychlor synergist against these two plant pests. A spray containing 0.5 per cent "Sesoxane" plus 1.0 per cent methoxychlor produced 100 per cent dead and moribund at 20 hours against these two species. For the two-spotted mite, the combination spray ("Sesoxane"—methoxychlor) was approximately 200 per cent more effective than the total kills of the materials applied individually. The combination spray was at least 300 per cent more effective than the total kill of the individual materials when applied to the bean aphids.

Table 7. "Sesoxane" as a methoxychlor synergist in tests with the confused flour beetle (averages of 3 replicates)

Treatment	% Kill in 24 Hours
0.25% "Sesoxane"	0
0.25% "Sesoxane" + 0.25% methoxychlor	75
0.25% methoxychlor	30

Synergized Methoxychlor

DU PONT research has discovered that methoxychlor insecticide is activated by a synergist that also activates pyrethrin insecticides. This fact is presented in the attached paper as a phenomenon substantiated by data showing the unusual activity of amounts of insecticide reduced below commercial control levels.

Du Pont is not yet prepared to recommend formulae for commercial use. The data do suggest that synergized methoxychlor may be used to advantage to bolster claims of roach control in sprays, aerosols, and crawling insect pressurized units (Table 6). There is increased activity against both normal and chlorinated hydrocarbon resistant strains of houseflies. Favorable results against granary weevil and confused flour beetles suggest the possibility of special grain bin and elevator sprays. Activity against black carpet beetle larvae suggests that reduced amounts of methoxychlor be used in mothproofers.

More research as to knockdown, kill, and residual effect is required with commercially adaptable formulations. Fast knockdown of roaches has been observed but not yet documented. The following data from Shulton research laboratories (W.A. R.F. Report 711001-3) is of decided interest as it shows commercial strength aerosols to be very active against German roaches.

	48 hour kill %
2.0% methoxychlor	12
2.0% methoxychlor + 1.0% "Sesoxane"	52
2.0% methoxychlor + 1.0% "Sesoxane" + 0.1% pyrethrins	83
OTA	83

Table 8. Evaluations of "Sesoxane" as a methoxychlor synergist with the black carpet beetle and granary weevil (averages of 3 replicates)

Treatment	— % Kill in 24 Hours — Black Carpet Beetle	Granary Weevil
1.0% "Sesoxane"	0	41.7
1.0% "Sesoxane" + 1.0% methoxychlor	58.3	98.3
1.0% methoxychlor	20	1.7

Confused Flour Beetles: "Sesoxane" has been found to be an effective synergist of methoxychlor against the confused flour beetle (Table 7).

Black Carpet Beetles and Granary Weevils: The black carpet beetle larvae and granary weevil adults received similar treatments of "Sesoxane" and methoxychlor. Table 8 presents the results showing synergism against the two insect species. It was shown that "Sesoxane" applied alone as a 1.0 per cent spray is toxic to the granary weevil.

Summary

Combinations of methoxychlor and "Sesoxane" have been found to have synergistic action on a wide variety of insects. Examples are house flies, German cockroaches, confused flour beetles, black carpet beetles, granary weevils, bean aphids and two-spotted mites. In one experiment, combinations of "Sesoxane" and methoxychlor gave a significant increase in the knockdown of house flies in addition to greater kill, although "Sesoxane" had no affect when used alone at the same rate. These results suggest that methoxychlor can be useful in new ways if combined with "Sesoxane."

Literature

1957. Sesoxane. Tech. Bul. 1001 (Preliminary). 3 pp. 1 table. Shulton, Inc. New York 20, N. Y.

Beroza, M. 1956. 3,4-Methylenedioxyphenoxy compounds as synergists for natural and synthetic pyrethrin. *J. Agr. Food Chem.* 4 (1):49-53.

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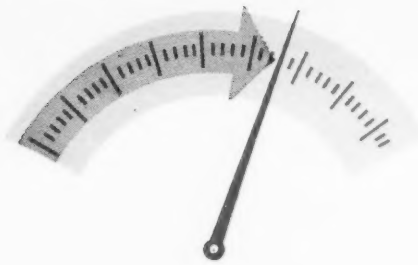

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SOAP PLANT *Observer*

By John W. McCutcheon

THE process engineer gets many of his ideas by visually inspecting new equipment in operation. What better opportunity for such inspection than the annual Chemical Exposition, which was held last month at the New York Coliseum. But before we go into details of the show let us examine a few motives for purchasing new type equipment.

The writer knows by first hand information that at least one inducement to buy new equipment may be blind pride in being first to do something new. The desire to keep up with or to surpass the Jones! Because a process has been made continuous does not in itself warrant the opinion that batch processes are obsolete. Yet many would-be purchasers of new plants, do not wish to discuss batch processes even in the face of sound economics. Perhaps the following sobering illustration will be helpful.

Not long ago the writer had occasion to revisit a soap and detergent plant he had not seen in a number of years. It was an old plant, and yet it was an up-to-date plant. What impressed the writer most was the fact that side by side with modern continuous processes stood the so-called old fashioned standard soap making procedures of twenty and thirty years ago. Perhaps the most amazing combination noted was a new continuous bar soap former, coupled with the old type cabinet style fan drier for surface conditioning of the soap prior to stamping. Now the writer knows that this same company, in another plant, has been using a streamlined continuous automatic bar conditioner for some years. Why had its fellow plant of almost equal size, still continued the old method? There is only one answer that fits the facts. This plant was being run on a sound economic

basis to make money for its shareholders. Apparently the new process could not – up to the present time – justify itself to the point of superseding another method that was still functioning with satisfaction!

However, if a new plant is being installed, equipment should be bought with an open mind. Too often one gets so obsessed with some piece of machinery that has been found satisfactory, that the merits of a new design are overlooked. A single new idea may revolutionize a whole processs or operation. The argument that new untried ideas may be pitfalls to the unwary, is only partially true today. Most reputable equipment manufacturers have facilities for trial runs with the client's product. Usually the supplier is so anxious to safeguard the reputation of his machine that he will advise against its use for any doubtful application. Production hitches arise more often from misapplication of equipment to processes for which it was not designed than from faulty design or construction.

Returning to the chemical show, exhibits of interest to the soap and detergent industry included materials handling equipment. The "Airveyor" system by Fuller Co., Catasauqua, Pa., is designed for the movement of dry materials such as soda ash, silicates, phosphates, etc. (Details in Fuller's bulletin A-15). Systems based on this principle may be used for the transfer of soap powders from spray tower to storage bins with the minimum breakdown of bead form. The unit cost of transfer by this means may be higher than by conventional bucket drag or belt conveyors. However, with the latter two forms of handling dust collection must be included as an item of cost.

A "Tote" bin (see Sept. 1957 issue of *Soap & Chemical Specialties*, p. 161) shown at the booth of Tote System, Inc., Beatrice, Neb., featured a side door opening and was lifted and tilted by a "Tote Tilt." A one-ton capacity forked truck, 33 inches wide, having a total fork lift of 10 feet was displayed by Crescent Truck Co., Lebanon, Pa. Price for this truck is approximately $6,500.

A "Radox" truck, to be operated either manually or by remote control, was shown by the Barrett-Cravens Co., 630 Dundee Road, Northbrook, Ill. It is designed to perform serial operations, such as handling a series of soap buggies, f.i. The most useful application the writer could visualize would be in a toilet goods warehouse for sorting a variety of orders from stock. The "Radox" truck features safety bumpers. For further information consult Barrett-Cravens, bulletin #534.

A one-man drum lift was shown by Sterling Fleischman Co., P.O. Box 94, Broomall, Pa. This appears to be a very handy device for a number of operations involving either open head or closed drums. Only the price seemed a little high.

New, at least to the writer, were the "Poly-Ply" shipping carboys made to slip fit into any standard open head drum of usual construction. These carboys would be very practical for handling of small quantities of corrosive liquids such as acids. However, their cost, about $21 for a 13-gallon carboy in a plywood jacket, would make them

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prohibitive for detergent transfer use, where the light polyethylene bags seem to be doing a very excellent job. Details about the carboys are available from Seymour & Peck Co., Broad & Lake Avenue, Rahway, N. J.

Proctor & Schwartz, Inc., Philadelphia, displayed a new package drier unit. (See bulletin 131 for description.) The model shown seemed very well made. However, it should not be considered suitable for spray drying of soaps, except on a very limited scale for laboratory testing, etc. However, modifications could possibly be introduced to increase the drier's efficiency in handling soap. It is surprising that Proctor & Schwartz whose flake driers have been standard in the soap industry for so many years, were so long in producing a spray drier and that when they did develop one it is not particularly applicable to soap making.

The Tolhurst Division of American Machine & Metals, Inc., East Moline, Ill., is now making horizontal centrifugal slurry classifiers, somewhat similar to the "Bird" continuous classifier. This machine should be very useful in the continuous treatment of glycerine lyes. It has always seemed a pity that application in this field was not pushed with greater vigor by the Bird Machine Co.

A dry mixer of unusual design called the "Nauta" is manufactured by Blaw-Knox Co., Pittsburgh, Pa., should prove of interest to compounders. The unit features a cone shaped vessel containing a helix which rotates around the side of the vessel drawing the material from the bottom to the top. The principle and engineering design appeared worthy of close study. Actual efficiency data could be obtained by plant test on products supplied by the purchaser. A liquid inlet would permit sulfonic acid to be sprayed into an alkaline dry mix for incorporating a detergent in situ during processing. What the writer liked most about this machine was that it could be very easily adapted to continuous operations. Sizes range from 10 to 125 cubic feet.

Many other pieces of equipment were noted that hold interest for detergent and oil process engineers. A few of these are briefly mentioned below:

Homogenizer—Manton-Gaulin Manufacturing Co., Everett, Mass., for continuous homogenization of cosmetics, etc.

Pipe-Line Homo-Mixer—Eppenbach Division of Gifford Wood Co., 420 Lexington Avenue, New York (see page 17, catalog 600) for cosmetics, cream shampoos, emulsions of all types.

"Niagara" horizontal H style pressure leaf filter—American Machine & Metals, Inc., East Moline, Ill., for fatty acid filtration. Model 316, stainless, designed for 100 psi pressure and 50 psi steam jacketed pressure with about 50 square feet of filter area costs about $6,000.

Jacketed pipe and fittings including elbows and valves—Hetherington & Berner, Inc., 701-745 Kentucky Ave., Indianapolis 7, Ind., for transfer of fats, oils, stearic acid, etc.

Polyvinylchloride valves and fittings—Vanton Pump & Equipment Co., Hillside, N. J., and Walworth Co., 60 East 42nd Street, New York 17, for many liquids up to 150 psi and 75°F. or 75 psi and 150°F., such as ammonium thiocyanate, fatty alcohols and acids, caustic, etc., but not oleum.

"Fischbein" portable bag closer—Dave Fischbein Co., 2720—30th Avenue, South Minneapolis 6, for multipaper bag closing such as used for bagged soap flakes, stearic acid.

Liquid tank gauges—"Tank-O-Meter" by Uehling Instrument Co., Paterson, N. J., and "Petrometer" by Petrometer Corp., 43-22 Tenth Street, Long Island City, N. Y.

* * *

IT IS with a great feeling of regret that the writer learned of the recent death of Dr. E. G. Thomssen, who contributed for many years a column similar to this one to *Soap and Chemical Specialties*. We were not very close professionally, due probably to the geographic distance separating our respective headquarters, plus the fact that during recent years Dr. Thomssen's health had not been of the best and he spent longer and longer periods in Florida. When we did meet or exchange letters the writer always learned something new. Dr. Thomssen was selective in his work and tried to work close to the field he knew best. Only once did I have occasion to pass through his little home town of Winona, Minnesota. As the train passed the rows of pretty white homes, I tried to guess which one belonged to my friend. His passing is a sad event in this corner; a little more of something will be missing.

—★—

"Metso" Detergent Data

A new folder describing its line of "Metso" silicate detergents was issued recently by Philadelphia Quartz Co., 1156 Public Ledger Building, Philadelphia 6. The bulletin provides complete product data on seven detergents, including applications, chemical properties and safety instructions. Also included is a chart listing suggested concentrations and general directions for more than 25 cleaning operations.

—★—

New Aceto Bulletin

A new bulletin describing its "Acquats," quaternary amonium compounds was published recently by Aceto Chemical Co., 40-40 Lawrence St., Flushing, N. Y. The products are used in the manufacture of soaps, detergents and cosmetics.

—★—

New Dow Catalog

A new 38-page catalog containing information on properties and uses of some 375 of its chemicals was published recently by Dow Chemical Co., Midland, Mich. The brochure also provides data on principal products groups, including surface active agents, alkylene oxides, glycols, organic acids and esters, phenyl phosphates, polysols, organic chelating agents, coating materials and aromatic chemicals.

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For complete information write *now* to Dept. RC-1, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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News...

PEOPLE • PRODUCTS • PLANTS

Soap Sales Statistics

* * *

T. V. DuBois Dies

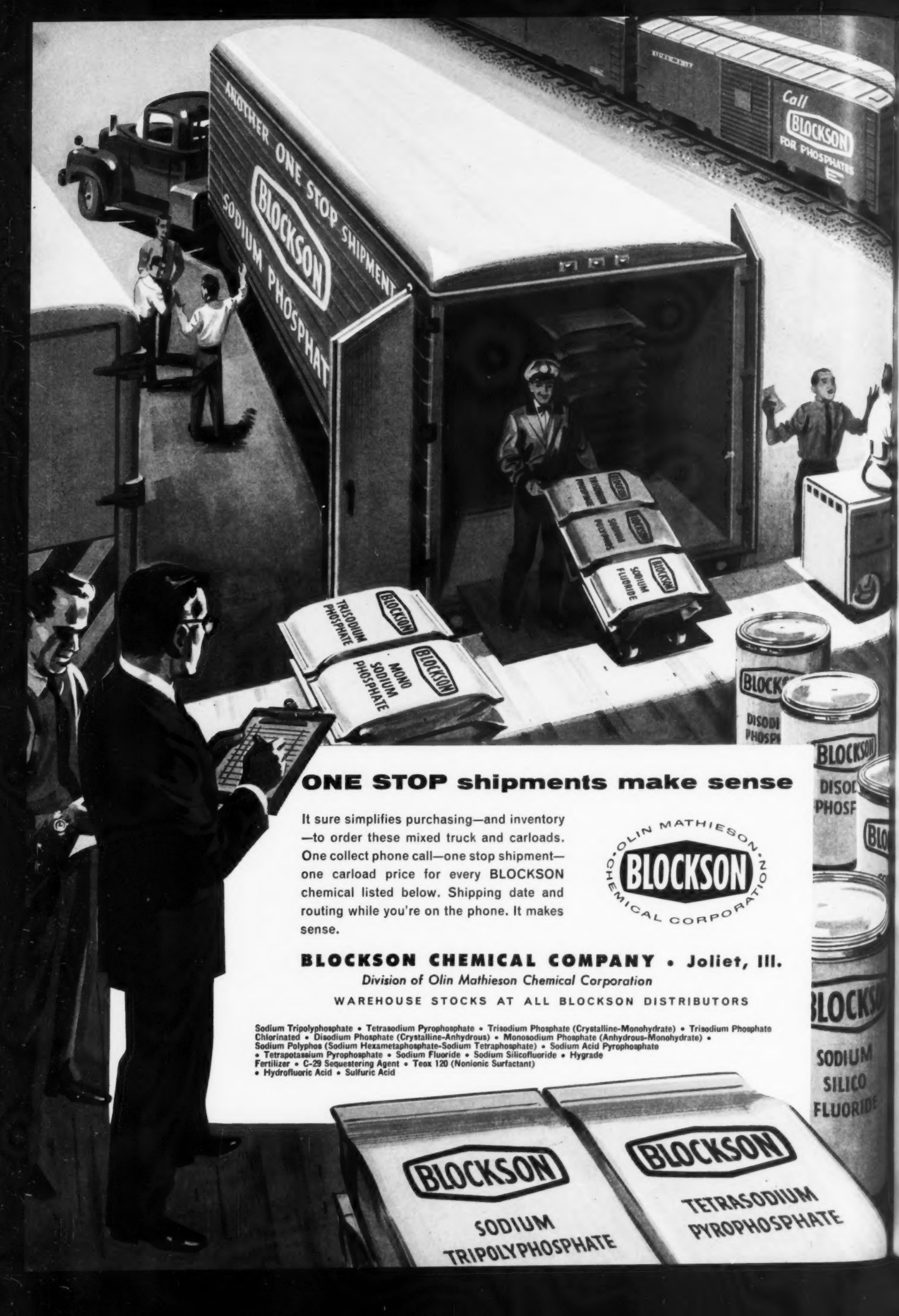
* * *

Simoniz Advances Rich

* * *

Egg Shampoo Ruling

Marshall S. Lachner returns to the soap business, this time as president of B. T. Babbitt, Inc. Formerly an executive of Colgate - Palmolive Co., he was president of Pabst Brewing Co., Milwaukee, for past two years.



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News

Terry Leaves Bon Ami

No successor has been named as yet to succeed Daniel H. Terry, who resigned last month as vice-president of research and development for Bon Ami Co., New York. Dr. Terry had held the post since October, 1956.

Daniel H. Terry

Dr. Terry, who joined Bon Ami in 1952 as research director, developed the formula for "Jet Spray Bon Ami," an aerosol dispensed cleaner. He previously had been associated with General Dyestuff Corp. and Antara Products Division of General Aniline & Film Corp., New York, and E. I. du Pont de Nemours & Co., Wilmington, Del.

As a member of the Chemical Specialties Manufacturers Association, New York, he has served three years as chairman of the Soap, Detergents and Sanitary Chemical Products Division, as a member of the board of governors, and is presently a member of the policy advisory committee.

In the Association of American Soap and Glycerine Producers, Inc., New York, he has served as vice-chairman of the machine dishwashing and building and equipment maintenance committees. He also is a member of the American Institute of Chemists.

Dr. Terry was graduated from Randolph-Macon College, and obtained his Ph.D. in organic chemistry from the University of Virginia.

—★—

Robert S. Hull Dies

Robert S. Hull, sales manager for the White King Industrial Division of Los Angeles Soap Co., Los Angeles, died Nov. 22 in that city, after a short illness. He was 51 years old. Mr. Hull joined the firm in 1946 as a sales representative in southern California. He became head of the industrial division in 1952.

—★—

Diversey Sells Notes

Diversey Corp., Chicago, has entered into an agreement for the sale of $1,200,000 of five and one-half per cent promissory notes due 1970 to the Equitable Life Assurance Society of the United States, it was announced last month.

—★—

John A. Manley Dies

John A. Manley, 68, executive vice-president and director of West Chemical Products, Inc., Long Island City, N. Y., died Dec. 7 at his residence in New York. His home was at Sunset Hill, Newtown, Conn.

Mr. Manley joined West in 1947 as vice-president and general sales manager. Prior to that, he was associated with several firms in the Mid-West, including Fairbanks Morse & Co. and Pioneer Publishing Co.

—★—

C-P Stock Dividend

An extra dividend of 25 cents per share on its common stock, which was payable Dec. 24 to stockholders of record Dec. 16 was declared last month by Colgate-Palmolive Co., New York. With regular quarterly payments of 75 cents, this brings the total dividends for the year to $3.25. Last year the company, without an extra dividend paid $3.00.

In New Simoniz Post

Appointment of Frank Rich as vice-president in charge of product development for Simoniz Co., Chicago, it was announced last month by Elmer Rich, Jr., president. For the past four years he has served as secretary. In his new assignment, he will coordinate all product development work done by the various departments of Simoniz.

Frank Rich

—★—

Lachner New Babbitt Pres.

Marshall S. Lachner has been elected president and chief executive of B. T. Babbitt, Inc., New York, it was announced last month. Mr. Lachner also was named to the board of directors and to the executive committee. He succeeds Samuel Mendleson who resigned as president last May to become board chairman. Since that time the company had been run on a committee-management basis under the direction of A. O. Samuels and Harold H. Shincel. The executive committee will now work closely with Mr. Lachner.

For the past year and one-half, Mr. Lachner was president of Pabst Brewing Co., Milwaukee. Prior to that, he served for 18 years with Colgate-Palmolive Co., New York. He joined C-P in 1938 as a display man, later serving as a retail

salesman, district supervisor, divisional supervisor and district manager in Chicago and Jersey City, N. J. In 1949 he was named manager of the Berkeley, Calif., division, a position he held until 1951 when he joined the home office as assistant manager of the soap and industrial sales department. He became manager of that department in 1953 and a year later was appointed vice-president of the soap sales division. He resigned from the latter post April 3, 1956 to join Pabst.

—★—

New Waterless Cleaner

A new waterless hand cleaner designed for cleaning paint, ink, tar, rubber cement and similar materials was developed recently by Milburn Co., 3246 East Woodbridge, Detroit. Called "Ply," the product is low in alkaline content with a pH of eight or less. It is said to have no adverse effects on rubber or fabrics. "Ply" is available in cream form, in one-pound jars, or in 80 ounce units for use with wall dispensers.

—★—

Burge Named by Pilot

Appointment of Robert W. Burge as national sales manager of Pilot California Co., Los Angeles was announced last month by John Morrisroe, president and general manager. For the past two years, Mr. Burge has served as sales representative. Prior to joining Pilot, he was associated with Victor Chemical Works, Chicago.

Robert W. Burge

Named to Lever Board

L. B. Parsons, vice-president of research and development for Lever Brothers Co., New York, has

L. B. Parsons

been named to the board of directors, it was announced late last month. Dr. Parsons has headed the research and development activities of Lever since 1951. He joined the company in 1939 after having served as research director of Cudahy Packing Co. In 1951 he became research and development director and in October, 1954 he was elected research and development vice-president. Dr. Parsons is president of the Association of Research Directors.

—★—

O. E. Lohrke Dies

O. E. Lohrke, 63, sales manager of Metasap Chemical Co., a subsidiary of Nopco Chemical Co., Harrison, N. J., died Dec. 20. He had been with the company for 34 years.

—★—

P&G Names Bidwell

David D. Bidwell has been appointed manager of manufacturing and product development for the toilet goods division of Procter & Gamble Co., Cincinnati. Formerly superintendent of the company's Baltimore plant, he will be succeeded in that post by Paul J. Howard.

Mr. Howard previously was superintendent of the synthetic detergents division of P&G's Port Ivory, Staten Island, N. Y., plant and before that held management posts at the Long Beach and Dallas plants. He has been with the company since 1948.

The Baltimore plant produces household soaps and synthetic detergents, including, "Tide," "Cheer," "Dreft," "Ivory," "Oxydol," and "Camay."

—★—

Lewis M. Prince Dies

Lewis M. Prince, former general manager in Germany for Colgate-Palmolive Co., New York, died of a heart ailment Dec. 1 at Orange Memorial Hospital, Orange, N. J. He was 60 years old.

Mr. Prince was associated with Colgate-Palmolive for 40 years. He held the post in Europe from 1927 to 1933, when an illness forced his return to the United States. After a period of sick leave, he resumed duties with the company as a representative in the Newark, N. J. area, a position he held until shortly before his death.

—★—

Downs to Calgon

Bernard G. Downs has joined the household products division of Calgon Co., a division of Hagan Chemicals & Controls, Inc., Pittsburgh, as southeastern zone manager. The southeastern zone is the largest in Calgon's marketing organization. It extends from the Virginias to Florida, and is bounded on the west by the Mississippi River. Mr. Downs formerly was associated with Thor Power Tool Co. and Borden Food Products in various sales capacities. In his new

Bernard G. Downs

assignment, he will headquarter in Atlanta.

At the same time, Calgon announced that a new mechanical dishwashing compound has been added to its line of commercial detergents. Tradenamed "High-Time," the product is suitable for cleaning dishes, glasses and silverware. Six ounces of material make up to 25 gallons of washing solution. The new compound is available in 125 and 350 pound fibre drums.

—★—

Hukill Sole Rep.

Hukill Chemical Corp., Cleveland, has been appointed technical sales representatives for Sole Chemical Corp., Chicago, surfactant manufacturer, it was announced recently. Hukill will handle Sole's line of products in Ohio, western Pennsylvania and the southern half of Michigan.

—★—

Southwell in New Post

Appointment of R. J. Southwell as a vice-president of Carbide Chemicals Co., and of the Bakelite Co., was announced recently. Both concerns are divisions of Union Carbide Canada, Ltd., Toronto, a subsidiary of Union Carbide Corp., New York.

Mr. Southwell formerly was president of Canadian Resins and Chemicals, Ltd., which is owned jointly by Union Carbide Canada and Shawinigan Chemicals, Ltd. He will remain with Canadian Resins as a director.

R. J. Southwell

To Head New Purex Div.

Frank P. Denney has been named vice-president in charge of the newly-formed international and

Frank P. Denney

industrial division of Purex Corp., South Gate, Calif. The division handles both domestic and foreign sales of the company's line of 31 industrial products. Mr. Denney formerly was vice-president in charge of plans and special projects.

Edward R. Spencer will serve as executive and technical staff assistant to Mr. Denney. R. A. Reidel, who has been with the company since 1955, has been appointed director of the international sales department. He will be responsible for production and sales of Purex plants in Australia, New Zealand, Mexico, the Philippines and Cuba.

Other industrial department appointments recently announced by the company include L. A. Maloney, sales manager of military exports; J. E. Mills, sales manager of sodium hypochlorite products; W. P. Franklin, sales manager of detergent and cleanser products; A. L. Schmidt, midwest sales manager and M. M. Dundrea, eastern sales manager.

—★—

Alvah E. Davison Dies

Alvah E. Davison, former president of Bon Ami Co., New York, died Dec. 13 in United Hospital, Port Chester, N. Y., after a long illness. He was 59 years old. Mr. Davison was president of Bon Ami from 1945 to November, 1955, when he retired. He joined the company in 1940 as vice-president and general manager. Prior to that, he served for five years with McCann-Erickson, Inc., New York, where he did work on the Bon Ami account.

Surviving are his widow, the former Miss Muriel Larman; a son, Donald A. of Rye; a daughter, Mrs. Paul Isenbergh, Narberth, Pa.; two brothers, Harold M. of Ridgewood, N. J., and Elmer H. of Delray Beach, Fla., and four grandchildren.

—★—

Kates Forms New Firm

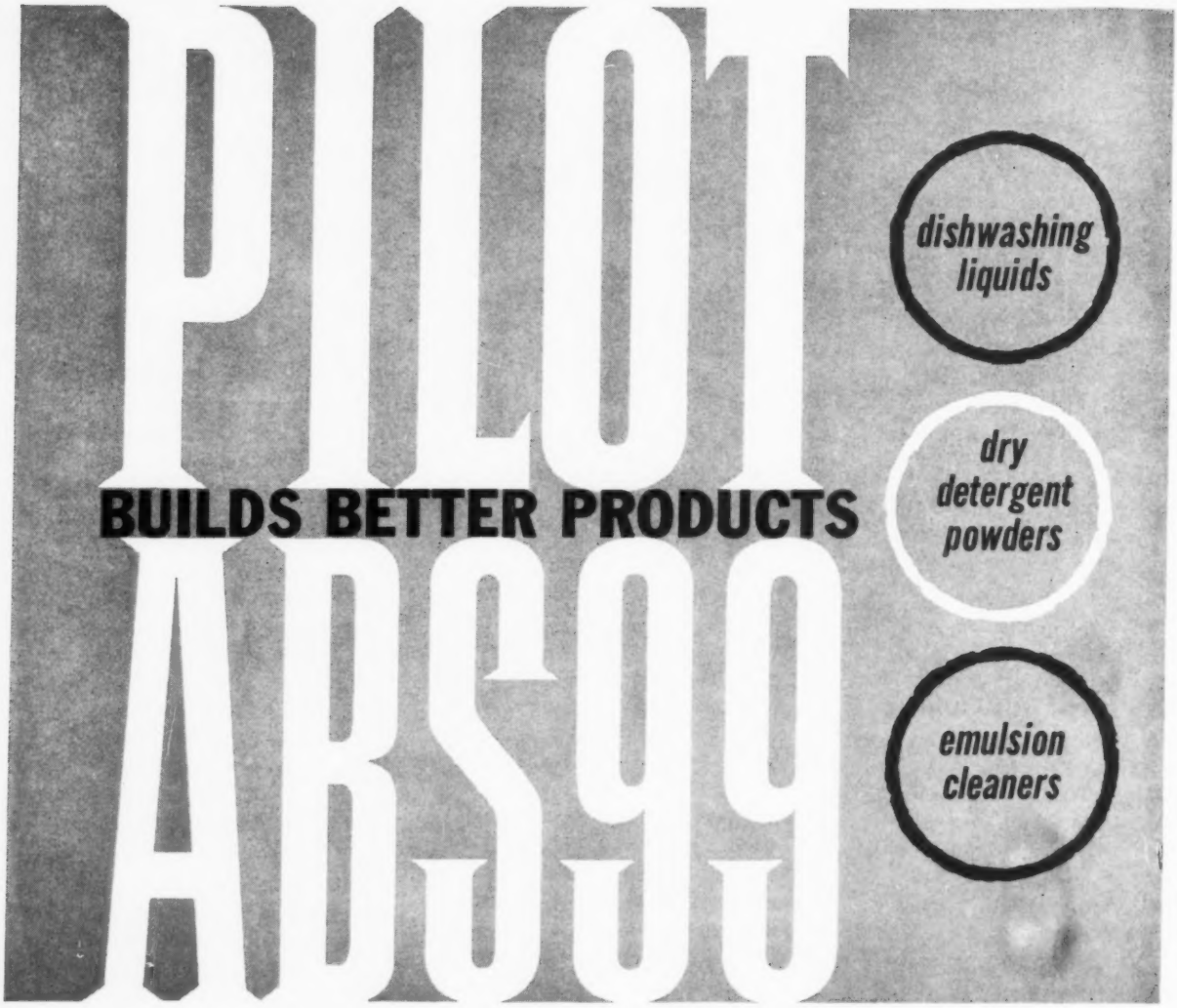
Formation of Triple V Chemicals, manufacturers' representatives in New York state and New England, was announced last month by Maurice V. Kates, formerly New England sales representative for Polak's Frutal Works, Inc., Middletown, N. Y. The new firm will handle products of cosmetic and pharmaceutical manufacturers, in addition to offering technical service in most phases of production. Triple V Chemicals is located at 64 Glenwood St., Malden 48, Mass.

—★—

John H. Lawson Retires

John H. Lawson, vice-chairman of the board of Enterprise Paint Mfg. Co., Chicago, and former president of the Federal Varnish Division of Enterprise, retired Jan. 1, after 37 years in the paint industry. He will, however, continue as a member of the board of directors. Mr. Lawson plans to spend his retirement at his home in Melbourne, Fla.

John H. Lawson



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Soap and Syndet Sales Reach Record High

COMBINED sales of soap and synthetic detergents reached an all time high during the first nine months of 1957 with synthetics accounting for an ever increasing share of the total, according to the most recent sales census published last month by the Association of American Soap and Glycerine Producers, Inc.

During the first three quarters of 1957, 3,145,194,000 pounds of soap and synthetic detergents were sold, representing a three per cent increase over last year's corresponding figure. This tonnage was valued at $760,881,000. Of this combined total, approximately 71 per cent was accounted for by synthetics, 3.1 per cent more than in 1956.

During the third quarter of 1957 combined total sales of soaps and synthetics were 1,153,499,000 pounds, a 12.2 per cent increase over the third quarter of 1956.

Sales of synthetics in the first three quarters of 1957 amounted to 2,224,604,000 valued at $518,977,000, a tonnage wise growth of 7.8 per cent over 1956. Liquid synthetics continued to be the greatest single growth item, having increased by 31 per cent in tonnage and 18.8 per cent in dollar value over last year's first nine months. Sales of liquids amounted to 255,264,000 pounds and $93,688,000 in 1957 compared with 194,872,000 pounds and $79,144,000 during the first nine months of 1956. In the third quarter alone 44.6 per cent more liquid synthetics were sold than in the corresponding quarter of last year.

In the face of a seven per cent overall drop in total soap sales, toilet bars continued their upward trend with a 4.5 per cent increase over the first nine months of last year. In the first three quarters of 1957, 407,150,000 pounds of toilet bars were sold valued at $133,560,000. Total sales of solid and liquid soap during the first nine months of 1957 amounted to 920,590,000 pounds and $241,904,000, compared with 989,289,000 pounds and $241,563,000 in 1956.

—★—

"Rinso" Promotion

Lever Brothers Co., New York, recently announced a new promotion campaign on behalf of its "Rinso" soap powder. The company will feature "Revere Ware" miniatures in an offer that will appear on all panels of the "Rinso" soap package in both sizes. The miniatures, replicas of copper and steel "Revere Ware" in household sizes, include an open skillet, open sauce pan, covered sauce pan, coffee pot, sauce pan and whistling tea kettle. The first two items will be available for 50 cents plus one boxtop from any "Rinso" soap package, while each of the others may be obtained for $1.00 plus one boxtop.

Sales of Soaps and Detergents During First Nine Months of 1957 and 1956

	Pounds		Dollars	
	1957	1956	1957	1956
Soaps other than liquid	897,286,000	563,033,000	237,001,000	235,774,000
Liquid soaps	2,913,000*	3,282,000*	4,903,000	5,789,000
Total	920,590,000		241,904,000	241,563,000
Bar toilet soaps, incl. mechanics	407,150,000	389,782,000	133,560,000	122,035,000
Laundry bars, yellow and other than white	34,520,000	41,099,000	4,054,000	4,795,000
Laundry bars, white	110,655,000	131,447,000	21,732,000	23,652,000
Soap chips and flakes, pkgd.	34,178,000	45,975,000	11,394,000	12,929,000
Soap chips and flakes, bulk	78,858,000	79,354,000	9,420,000	9,238,000
Soap, granulated, sprayed, pkgd.	123,942,000	155,133,000	33,726,000	38,380,000
Soap, granulated, sprayed, bulk	62,369,000	68,229,000	7,546,000	7,852,000
Washing powders, pkgd.	2,002,000**	3,060,000**	184,000**	307,000**
Washing powders, bulk	9,932,000	11,671,000	920,000	956,000
Hand pastes	3,601,000	4,735,000	425,000	605,000
Hand powders	5,386,000	6,027,000	883,000	1,006,000
Paste and jelly soaps	10,948,000	11,483,000	1,529,000	1,546,000
Shaving soaps	2,426,000	2,709,000	1,696,000	1,797,000
Shaving cream	10,412,000	11,053,000	9,760,000	10,437,000
Liquid soaps, other than pkgd. shampoo	2,842,000*	3,160,000*	4,191,000	4,888,000
Soap shampoo, liquid, pkgd.	71,000*	122,000*	712,000	901,000
Misc. or other soaps	907,000	1,276,000	172,000	239,000
Detergents, solid	1,969,340,000	1,869,635,000	425,289,000	381,496,000
Detergents, liquid	255,264,000	194,872,000	93,688,000	79,144,000
Total	2,224,604,000	2,064,507,000	518,977,000	460,640,000
Detergents, solid, pkgd., other than shampoo	1,809,423,000	1,674,318,000	401,438,000	355,865,000
Detergents, solid, bulk, other than shampoo	146,858,000	182,312,000	16,158,000	17,394,000
Detergents, liquid, pkgd., other than shampoo	26,227,000*	20,842,000*	80,219,000	66,015,000
Detergents, liquid, bulk, other than shampoo	4,981,000*	2,696,000*	5,188,000	3,322,000
Detergent shampoos, liquid	5,600,000	6,568,000	8,281,000	9,807,000
Detergent shampoos, solid	13,059,000	13,005,000	7,693,000	8,237,000

* Expressed in gallons.
** Subject to fourth quarter revision.

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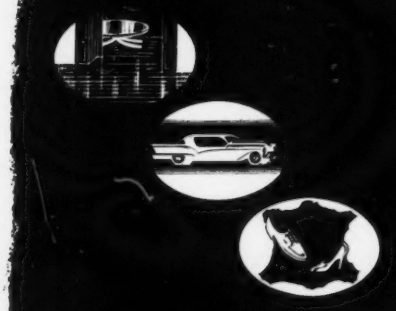

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Wyandotte Appoints Two

Lewis M. Ludlow has been named special technical representative for the Michigan Alkali Division of Wyandotte Chemicals Corp., Wyandotte, Mich., it was announced recently. Formerly Wyandotte's west coast sales representative, Mr. Ludlow is succeeded in that post by John A. Bucher.

Lewis M. Ludlow

John A. Bucher

In his new capacity, Mr. Ludlow will be concerned with sales development of the firm's "Pluronic" series of nonionic surface active agents and polyurethanes. He joined Wyandotte in 1950 in the surfactant sales department and was appointed a salesman in 1954.

Mr. Bucher, who joined the company last year as a trainee, will headquarter in Los Angeles. His territory includes northern California and the Pacific northwestern states.

Edward J. Breck Honored

Edward J. Breck, president of John H. Breck, Inc., Springfield, Mass., has been selected by the Springfield Post of the Jewish War Veterans, for its 1957 Outstanding Citizens Award. The presentation, made each year to a citizen of Greater Springfield in recognition of outstanding community service, will be given to Mr. Breck at a dinner to be held Mar. 30.

—★—

New R&H Sanitizer

Rohm & Haas Co., Philadelphia, last month announced commercial production of its new quaternary ammonium sanitizer for use on dairy, restaurant and food processing equipment. Called "Hyamine 3500," the product is a water-white 50 per cent solution. According to the manufacturer, "Hyamine 3500" will make possible formulation of liquid sanitizers which will meet the requirement of The Federal Milk Code and Ordinance in waters of zero to 550 ppm hardness. In alkaline-built detergent sanitizers, the product is claimed to be effective in 1250 ppm hard water.

—★—

CIBS Elects Officers

The following officers were elected by the Cosmetic Industry Buyers and Suppliers Association at a meeting held recently at Toots Shor's Restaurant, New York: William Jaeger, Park & Tilford, president; John Duncan, Hazel-Atlas Glass Co., first vice-president; Lamson Scovill, Scovill Mfg. Co., second vice-president; Allen T. Stewart, Parfait Promotional Packaging Co., corresponding secretary; Jay Stephens, Daggett & Ramsdell, Inc., recording secretary; and Gene Roberts, Lanvin Parfums, Inc., treasurer. Elected to the board of directors were J. William Voit, George Lueders & Co. and James E. Beyer, Lehn and Fink Products Corp.

Two Solvay Appointments

John B. Green has been named comptroller and H. G. Phillipps, Jr., manager of the Syracuse sales branch, of Solvay Process Division of Allied Chemical & Dye Corp., New York. Mr. Green succeeds John J. Bryers, who retired Dec. 31 after 50 years with the company. Mr. Phillips replaces William E. Hess, who has also retired after 27 years with Solvay.

Mr. Green came to Allied Chemical in 1939 and for the past year had been assistant comptroller. Mr. Phillipps joined Solvay in 1926 as a salesman. After serving in the New York, Detroit and Cincinnati sales offices, he was named manager of the Pittsburgh branch in 1948. In this capacity, he supervised Solvay's sales activities in western Pennsylvania and West Virginia.

—★—

Ferdinand Weber Dies

Ferdinand Weber, first vice-president and treasurer of George Lueders & Co., New York, died Dec. 23. He was 88 years old. Mr. Weber joined Lueders in 1892. He was past president of the Essential Oil Association and of the Vanilla Bean Association. Surviving are three sons, George, Frederick and Kurt, and four grandchildren.

Walter Sweet, left, Minneapolis technical service representative since 1946 for Oakite Products, Inc., New York, receives D. C. Ball Award from John A. Carter, president, at recent company sales meeting in Chicago. The award, named in honor of the founder of Oakite Products, is given annually to a representative who through his work best reflects credit on both himself and the company.

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Breck Shampoo Promotion

John H. Breck, Inc., Springfield, Mass., recently announced plans to co-sponsor "Shirley Temple's Storybook," which premiered over the NBC television network, January 12, at 8:00 p.m. Breck will utilize the time for promotion of its new "Breck Banish" shampoo, which was introduced nationally earlier this month. In addition, three other Breck shampoos and Breck "Hair Set Mist" will receive heavy promotion. In all, Breck will co-sponsor 16 "Storybook" shows during 1958. The first program, which appeared in the time usually occupied by the Steve Allen Show, was carried over 159 stations. Programming details for future presentations will be announced in the near future.

Heads or tails decides which sponsor gets the opening commercial in the first production of "Shirley Temple's Storybook," which premiered over NBC television on Sunday, Jan. 12. Edward J. Breck, president and general manager of John H. Breck, Inc., Springfield, Mass.; Glenn Gundell, vice-president of Sealtest Division of National Dairy Products Corp., left, and James F. Lunn, advertising manager of Sealtest, right, watch coin flipped by Thomas McDermott, vice-president in charge of radio-television plans at N. W. Ayer & Son, Inc., the sponsors' agency. Breck won the toss.

★

Hagan Chemicals Dividend

Hagan Chemicals & Controls, Inc., has declared a dividend of 40 cents per share on common stock, payable Jan. 21, and a stock dividend of two per cent, payable Jan. 31, both to holders of record Jan. 10. The company paid 35 cents per share in previous quarters and an extra of 15 cents per share last January.

★

New Solvay Executives

Appointment of Wilbur H. Brumfield and Cortez P. Hackett as vice-presidents of Solvay Process Division of Allied Chemical & Dye Corp., New York, was announced recently by I. H. Munro, division president.

In his new assignment, Mr. Brumfield will assume increased administrative and executive duties and will headquarter in New York. Formerly assistant to the president, Mr. Brumfield joined Solvay in 1935 at its Baton Rouge, La., plant. He transferred to Syracuse in 1946 and was named director of operations in 1955.

Mr. Hackett, who will headquarter in Syracuse, will be in charge of all Solvay's operating and development department functions. With the company since 1932, he was formerly director of development.

Other appointments recently announced by Solvay include Clyde A. Kitto, director of operations, Arnold Hanchett, director of development, and N. James Campbell, manager of the company's Syracuse plant.

Wilbur H. Brumfield

Cortez P. Hackett

★

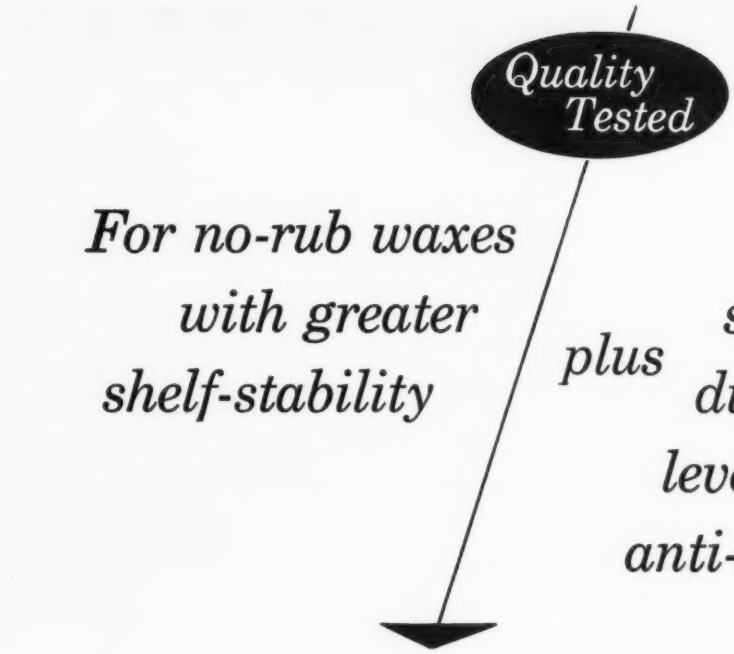
Oronite Advances Echols

R. E. Echols has been appointed to the newly-created post of supervisor of product development for Oronite Chemical Co., San Francisco, it was announced recently. Mr. Echols previously was surfactant product specialist. He is succeeded in that capacity by R. D. Stayner, who comes to Oronite from California Research Corp. In his new assignment, Mr. Echols will supervise activities of the home office product development staff.

★

Merck Elects Bush

Vannevar Bush has been elected board chairman of Merck & Co., Rahway, N. J., it was announced recently by John T. Connor, president. He succeeds the late George W. Merck, who died in November. A director since 1949, Dr. Bush also served on the firm's executive committee.



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Weed Joins Mantrose

William J. Weed, who retired Dec. 31 as vice-president of Hooker Electrochemical Co., Niagara Falls, N. Y., has joined Mantrose Corp., Brooklyn, N. Y. shellac manufacturing firm, as a director and chairman of the executive committee. The announcement was made by Robert J. Milano, president.

William J. Weed

He had held his most recent position two years. Prior to its 1955 merger with Hooker, Mr. Weed served for 43 years with Niagara Alkali Co. At the time of the consolidation of the two firms he was vice-president and director of sales for Niagara.

At the same time, Mr. Milano announced the election of Joseph E. Sternberg as vice-president of operations. Mr. Sternberg previously was secretary and will be succeeded in that post by John W. Hall, Jr., who also serves as sales manager. Morris A. Rosen continues as board chairman, Adrian E. Jacobs as vice-president and Jerome F. McGinty as treasurer.

★

New Pennsalt Barges

Pennsalt Chemicals Corp., Philadelphia, recently announced the launching of two new tank barges that will be used to carry caustic soda and caustic potash from its Calvert, Ky., plant to customers along the inland waterways system.

Each of the barges, which are 175 feet long and 26 feet wide, contain two insulated compartment tanks. The larger compartment holds 50,000 gallons of caustic soda, while the smaller compartments hold 9,000 gallons of caustic potash. Bulkheads in the tanks separate the two products during shipment.

★

James C. Mellady Dies

James C. Mellady, president and a founder of Brondow Chemical Co., Tuckahoe, N: Y., died Dec. 13 of a coronary thrombosis at his home in Eastchester, N. Y. He was 71 years old. Mr. Mellady helped found Brondow 15 years ago. The company manufactures disinfectants, including "Breath-o-Pine". For 38 years, until 1942, Mr. Mellady had been with George W. Helm Co., New York, a subsidiary of American Tobacco Co.

Surviving are his widow, Isabelle; a daughter, Mrs. Gerald H. Fitzgerald of Brooklyn, and a sister, Mrs. William Carey.

★

Atlas Names Malinowski

Appointment of Theodore P. Malinowski as assistant director of product development for the chemicals division of Atlas Powder Co., Wilmington, Del., was announced recently. Formerly development manager, Mr. Malinowski will head the exploratory field development and marketing research sections of the division. He joined Atlas in 1956, after 10 years as development engineer for the product development department of Monsanto Chemical Co., St. Louis.

Theodore P. Malinowski

Loeffler in New Post

Alfred T. Loeffler, vice-president of Food Machinery and Chemical Corp., New York, has been named to supervise marketing activities of the firm's five chemical divisions, it was announced last month by Dr. Carl F. Prutton, executive vice-president. In addition to directing sales, Mr. Loeffler will work with each division in the expansion of their product lines. FMC's chemical divisions include Becco Chemical, Niagara Chemical, FMC Organic Chemicals, Westvaco Chlor-Alkali and Westvaco Mineral Products.

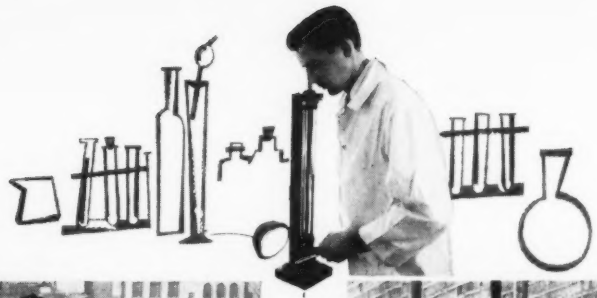
Alfred T. Loeffler

Mr. Loeffler joined FMC as assistant vice-president in August, 1953. He previously served with Monsanto Chemical Co., St. Louis, in various capacities, including branch manager in New York and development director of the organic chemicals division. Before that, he was associated with Hooker Electrochemical Co., Niagara Falls, N. Y.

★

Glamur Products Dividend

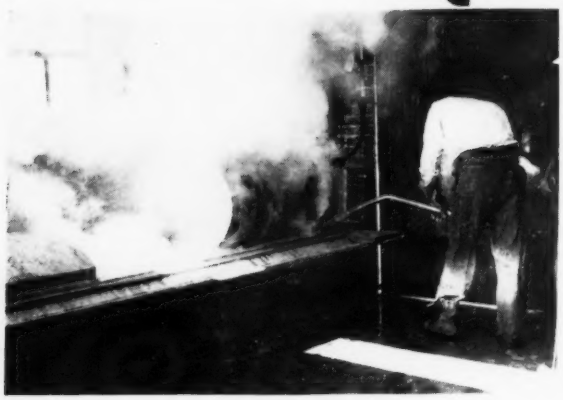
Glamur Products, Inc., Syracuse, N. Y., manufacturers of rug and upholstery cleaners, last month declared a five per cent stock dividend payable to common stockholders of record Dec. 27. This is the first dividend since the company became publicly owned three years ago. Since then, Jack Hosid, president, said gross sales had climbed from $100,000 to $1,000,000 in 1957.



Samples for quality, clarity and color are taken, and sent to the laboratory prior to unloading any tank or transport.

Separate lines for each product eliminates any contamination.

QUALITY



Drums are washed in a boiling caustic bath, rinsed then air-blown to assure a dry container.

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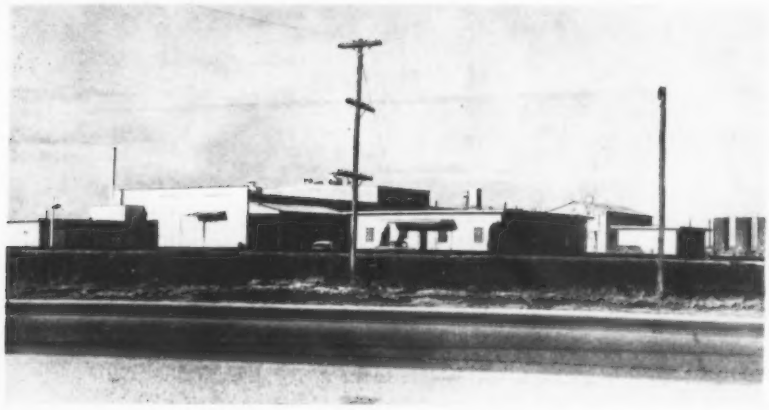
THE SOLVENTS AND CHEMICALS GROUP
2540 West Flournoy Street • Chicago 12, Illinois



New five-building Waco, Tex., plant recently purchased by Diversey Corp., Chicago, from Diamond Black Leaf Co., Cleveland. Unit, which contains more than 20,000 square feet of manufacturing area, will be utilized by Diversey for production of industrial cleansing products, disinfectants and bottle washing compounds.

Diversey Buys Plant

Diversey Corp., Chicago, recently purchased a five-building insecticide plant in Waco, Tex., from Diamond Black Leaf Co., Cleveland. Purchase price was announced at $142,000. The plant, which contains more than 20,000 square feet of manufacturing area, is located about one-half mile south of the Waco city limits.

The new property includes an insecticide plant, two warehouses, an office building, employees' locker rooms and three, 12,000 gallon chemical storage tanks. Diversey will use the plant to manufacture industrial cleansing products, disinfectants and bottle washing compounds. Full scale production is scheduled to begin Feb. 1.

—★—

ADACIOM Elects Mann

E. Ted Mann of the St. Louis office of Dow Chemical Co., Midland, Mich., has been elected president of the Associated Drug and Chemical Industries of Missouri, Inc., St. Louis, at the organization's annual business meeting held last month at the Hotel Chase. Leo G. Peck, of Peck's Products Co., St. Louis, was elected first vice-president.

Other officials elected for 1958 included Robert F. Walsh, Harry A. Baumstark & Co., second vice-president; Robertson B. Clark, Mallinckrodt Chemical Works, third vice-president; S. C. Gansner, Cole Chemical Co., secretary; and J. Louis Lanz, Albert Verley & Co., treasurer.

Named to the executive committee were E. E. Aldrich, Rexall Drug Co.; George W. Barth, Owens-Illinois Glass Co.; William Carpenter, Columbia-Southern Chemical Corp.; W. D. Vesey, Merck & Co.; Joseph C. Weiler, J. C. Weiler & Co.; and Phil Yates, Marvin Yates Co.

E. R. Bartlett Dies

Edwin R. Bartlett, 74, former president and board chairman of Hooker Electrochemical Co., Niagara Falls, N. Y., died Dec. 10 of a heart attack at his winter home in Siesta Key, Fla. At the time of his death, he was a member of the board of directors and chairman of the finance committee. He served as president from 1945 to 1951 and as board chairman from 1951 to 1955.

Mr. Bartlett began his business career in 1907 as timekeeper at Development and Funding Co., Niagara Falls, predecessor to the Hooker Co. In 1919 he was named Hooker's works manager and in 1924 became a director. He later was appointed a vice-president and in 1941 was named executive vice-president.

In addition to his many executive functions at Hooker, Mr. Bartlett also served as president and director of the former Hooker-Detrex, Inc.; treasurer and director of Niagara Brine Corp., director of Dobbie Foundry & Machine Co., a

(*Turn to Page* 173)

Givaudan Christmas Party

More than 350 employees attended the annual Christmas Party of Givaudan-Delawanna, Inc., held at the Swiss Chalet, Rochelle Park, N. J., Dec. 14. Highlight of the affair was the presentation of a gold watch to George Wason, who has completed 25 years with the company. He is the 66th member of the firm's quarter-century club. Givaudan officials attending the party included E. R. Durrer, president, H. F. Duffy, treasurer, and Dr. Max Luthy, vice-president of production and research.

E. R. Durrer, president of Givaudan-Delawanna, Inc., New York, presents gold watch to George Wason, who last month completed 25 years' service with the company. Mr. Wason becomes 66th member of firm's quarter-century club. Other Givaudan officials shown are H. F. Duffy, treasurer, extreme left, and Dr. Max Luthy, vice-president.

An Advance in Stability

GIVAUDAN'S MENTHANYL ACETATE!

Menthanyl Acetate, Givaudan's new perfume ester, is the latest contribution to the development of stable perfumes for soaps, detergents and cosmetics.

Coupled with its unusual stability, Menthanyl Acetate has a clean, refreshing odor with good strength and body which makes it an ideal aromatic for many popular types of perfumes. Practical to use, domestically produced Menthanyl Acetate is moderately priced and readily available.

Although Menthanyl Acetate lends itself well to the creation of many bouquets, its use in artificial bergamot, petitgrain, and lavender is specifically suggested by its resemblance to linalyl acetate.

Samples and our technical data sheet are available upon request.

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.

330 West 42nd Street
New York 36, N.Y.

director of the Marine Trust Co., and a member of the executive committee of Power City Trust Office of Marine Trust.

Mr. Bartlett's son, Edwin P. Bartlett, is personnel director at Hooker's Montague, Mich., plant.

—★—

New Drackett Treasurer

Stewart M. McMakin has been elected treasurer of Drackett Co., Cincinnati, it was announced recently. Mr. McMakin joined the company in 1943 and was named assistant treasurer in 1951.

The firm also reported that L. P. Stewart, who joined the company in 1943 as a research chemist, has been named research director.

—★—

SAACI Golf Dates

The Salesmen's Association of the American Chemical Industry, Inc., New York, recently announced its 1958 schedule of golf outings. The dates follow: May 20, Spring Brook Country Club, Morristown, N. J.; June 26, Dellwood Country Club, New River, N. Y.; July 22, Bonnie Briar Country Club, Larchmont, N. Y.; August 19, Tamarack Country Club, Greenwich, Conn.; and Sept. 18, Hackensack Country Club, Hackensack, N. J.

—★—

Bleach Price Cut

Monsanto Chemical Co., St. Louis, Mo., announced a 10 cent a pound price reduction, effective Dec. 23, for "ACL"-85 (trichloroisocyanuric acid) and "ACL"-75 (dichloroisocyanuric acid). The reduction applies only to truckload and carload lots. Less than carload lots price remains unchanged at 75 cents per pound. Both compounds are used as active ingredients for household dry bleaches, laundry bleaches, scouring powders, and sanitizing agents.

The price reduction became effective as Monsanto announced the completion and opening of its new continuous "ACL" production unit at Everett, Mass. A large scale pilot plant at Everett had been meeting demands since the products' introduction in 1953.

Givaudan to Brazil

Leon Givaudan, director and general manager of Companhia Brasiliera Givaudan, Sao Paulo,

Leon Givaudan

Brazil, recently returned to that city after a three week visit to the United States. While here, Mr. Givaudan conferred with directors of Givaudan-Delawanna, Inc., New York, and representatives of the U. S. toilet goods industry.

—★—

More Milner Advertising

A one-third increase in its 1958 advertising budget was announced last month by Dumas Milner Corp., Jackson, Miss., manufacturers of "Pine-Sol" disinfectant and cleaner and "Perma Starch," a plastic liquid permanent-type starch.

Howard S. Cohoon, president, said that the firm will spend about half of its $2,000,000 advertising budget on network radio. The remainder is for television spots, newspaper and trade paper advertising.

In explaining the emphasis of a large portion of the budget toward network radio, Mr. Cohoon stated that during 1957, where radio spots were used on "Pine-Sol" and "Perma Starch," the company enjoyed a much larger sales increase than where TV spots were used. Both resulted in sharp advances of from 25 to 125 per cent, however.

The company will also utilize part of the budget for sponsorship of the 1958 "Homemakers Forum," Florida vacation contest. Prizes will be awarded to 17 tradesmen and 40 consumers who are selected on the basis of their favorite household hints sent in on "Pine-Sol" and "Perma Starch" labels. The sales contest, which began January 2, runs through Mar. 15. Retailers will be judged on the basis of support given the consumer contest via originality and uniqueness of displays. Other in-store promotion will also be considered, according to Vincent Tateo, vice-president of marketing. Brokers' salesmen will receive credit for cases on display and free tie-in advertising secured in retail stores.

Howard S. Cohoon, left, president of Dumas Milner Corp., Jackson, Miss., introduces William J. Smith of Smith & Swinton Co., Cleveland food brokers, during recent National Food Brokers Association sales conference in Chicago. Mr. Smith's firm was the winning brokerage organization in the Milner "Pine-Sol" and "Perma Starch" merchandising contest of 1957. At conference, Dumas Milner used models, entertainment and Florida scenery props in announcing contest plans for 1958.

—★—

John R. Bunnell Retires

John R. Bunnell, president of Oil-Kraft, Inc., Cincinnati, manufacturer of liquid and hand scrub soaps, synthetic detergents, disinfectants and floor waxes, retired Dec. 31. Mr. Bunnell co-founded the firm in 1925. He will continue as a manufacturing consultant.

Mr. Bunnell is succeeded as president by Robert L. Peters. Other newly-elected officers include Guy Peters, board chairman, Matthew J. Kabbes, vice-president, Clifford E. Mooney, secretary-treasurer, and Mrs. Thelma Mayhall, assistant secretary-treasurer.

Stampley to West End

The appointment of R. M. Stampley to its sales staff was announced recently by West End

R. M. Stampley

Chemical Co., Oakland, Calif. For the past ten years, Mr. Stampley had been associated with Dorr-Oliver, Inc., He will be responsible for marketing of West End's line of anhydrous sodium sulfate, soda ash and lime products.

—★—

Tombarel Names Gogarty

Arthur Gogarty has been named vice-president in charge of sales and management for Tombarel Products Corp., New York, it was announced recently by Francois Goby, president. Mr. Goby left for France recently after a seven weeks visit to this country. With Tombarel since January, 1950, Mr. Gogarty was named sales manager

Arthur Gogarty

in January, 1952, a position he held until his recent appointment.

—★—

Pest Control Conferences

Three regional pest control conferences are scheduled for the next two weeks in various parts of the country. The 18th annual Eastern Pest Control Operators' Conference will be conducted at the University of Massachusetts, Amherst, Mass., Jan. 22-24. The Purdue Pest Control Operators' Conference will be held for the 22nd consecutive year at Purdue University, Lafayette, Ind., Jan. 27-31, while the 18th annual conference of Southern Pest Control Operators will take place at the Washington-Youree Hotel, Shreveport, La., Feb. 4-5.

Highlights of the eastern conference will be panel discussions on "Termites," "Rodents," "Insecticides," and "Resistance." The Purdue meeting will feature six concurrent programs on termites and a discussion of "Rodent and Wildlife Pests." The southern conference will include talks on "Resistance – The Insects and Insecticides," and "Rodent Identification and Control."

— ★ —

USDA Accepts "Diazinon"

"Diazinon" can now be incorporated in pesticide formulations for sale to the public it was announced recently by Geigy Agricultural Chemicals, Division of Geigy Chemical Corp., Ardsley, N. Y., manufacturer of the organic phosphorus compound. A formulation of one half per cent "Diazinon" solution in deodorized kerosene with added pyrethrins and piperonyl butoxide has been accepted by the U. S. Department of Agriculture for use against roaches, ants, silverfish, brown dog ticks, fleas, wasps, spiders, crickets, carpet beetles, flying moths, and chiggers. Label claims along these lines have been accepted by USDA. Previously "Diazinon" was recognized as a household pest control agent for use by professional pest control operators, only.

T. V. DuBois Dies

T. V. DuBois, founder and president of DuBois Co., Cincinnati, manufacturer of industrial

T. V. DuBois

and institutional cleaning compounds, died suddenly Nov. 23 of a heart attack at his home in Indian Hill, O., a suburb of Cincinnati. Mr. DuBois founded the company in 1920 and remained its active head until his death, although he had suffered a heart attack several years ago.

During his 37 years as president, Mr. DuBois built a firm whose products now are marketed nationally, with manufacturing facilities in Los Angeles and Dallas, in addition to its main Cincinnati plant. A new plant is presently under construction at East Rutherford, N. J.

Don Bush, formerly of Firmenich, Inc., New York, recently joined Fritzsche Brothers, Inc., New York. He is the son of B. T. Bush, well known figure in the perfuming materials field. Don's two brothers Edward and Thomas are also in the industry. Ed is with Dragoco and Tom is with Hoffman-LaRoche.

Sign up now for the 1958

CHLORDANE

INSECTICIDE PROGRAM

SALES SUPPORT IN DEPTH!

For many years, Chlordane promotional campaigns have helped formulators increase demand at the dealer level. The good effect that this support has in sales was proven conclusively by the 1957 Chlordane "Show and Sell" Contest.

In 1958, we would like to increase this support of your own sales program. For this reason, we have taken the best features of previous programs, and added new features, based on information obtained in discussions with garden supply dealers everywhere. The result is a more comprehensive and penetrating program: Sales support in depth.

EDUCATIONAL PROGRAM

This program will contain more of the old stand bys—consumer advertising and promotional aids—plus an entirely new educational campaign. We have found that most dealers appreciate more information about the use of insecticides. Many dealers who are experts themselves must work with green sales people. Also, your own salesmen cannot afford to spend the time necessary to explain all aspects of insecticide use to all dealer personnel. Thus, the 1958 Chlordane program will include an informative "dealer refresher course" on insecticides. Your dealers will be provided with information that will enable them to discuss insecticides more freely with their customers. It will enable them to sell insecticides with authority and intelligence. Included in the program will be "Down-To-Earth" sales techniques that every dealer can use, regardless of size.

FIND OUT NOW HOW THE 1958 CHLORDANE DEALER PROGRAM CAN HELP YOU INCREASE SALES AND DISTRIBUTION! MAIL THIS COUPON TODAY!

VELSICOL

VELSICOL

CHEMICAL CORPORATION

330 East Grand Avenue **Chicago 11, Illinois**

MONTHLY NEWSLETTER—NEW PROMOTIONAL AIDS

Current insect control information will be provided on a continuing basis through a monthly newsletter. There will also be many other profit-making promotional aids.

SALES INCENTIVE CONTEST

In addition Chlordane will sponsor a $10,000 display contest for dealers. There will also be special cash bonuses and cash prizes for formulator and distributor salesmen.

NATIONAL PRIZE WINNERS 1957 CHLORDANE SHOW AND SELL CONTEST

1. East Bay Nursery, Berkeley, Calif. ..... Trip to Paris for two.
2. Treeland Garden Center, Lindenhurst, L.I., N.Y. $750.00
3. Argilla & Boscacci, Redwood City, Calif. $375.00
4. Orr Seed Company, Norfolk, Virginia $200.00
5. Ford Staffel Company, San Antonio, Texas $100.00

SCS-18

VELSICOL CHEMICAL CORPORATION
330 East Grand Avenue
Chicago 11, Illinois

Send me complete information about the 1958 Chlordane Insecticide Dealer Program.

My Name_____

Store Name_____

Address_____

City_____ Zone_____ State_____

Prelude to 8:45 a.m.

Now there's no clack of typewriters, no click of heels. But 8:45 a.m. comes early.

With it will come the traffic. Vice president's measured plod . . . secretary's tap-tap-tap . . . office boy's frantic gallop. A loaded dolly rumbling to the stock room. Hurry, hurry —pound, scuff, scrape—until 5 p.m.

Will this floor polish take it?

Yes.

The *real* prelude to 8:45 a.m. began months ago, when a chemist started swabbing 63 different polishes on squares of the same kind of floor tile you see above.

Somehow, as happens often, a Durez man was in the picture, too.

Drawing on 20 years of wax-emulsion experience, he provided the chemist with sample resins to add gloss, hardness, water resistance, slip resistance, stability.

Then he suggested ways of *getting the most out of the resin,* for a balanced blend of these properties.

When the polish was ready to market, the manufacturer knew it was right. It had the best blend of properties available for this type of flooring, at the price he was asking.

Are you researching a new polish? Your selection of *resin* can make a big difference in results.

More important still is the *experience* that goes into your choice of resins. There are no up-to-date textbooks on their application.

To tap this experience, ask us now for samples of Durez wax emulsion resins that may give your polish the qualities you want it to have.

If you prefer to buy fusions of resin and wax, you can get them, made with Durez resins, from many specialty processors. Ask us for their names.

DUREZ® HOOKER CHEMICALS PLASTICS

PLASTICS DIVISION

HOOKER ELECTROCHEMICAL COMPANY

401 Walck Road • North Tonawanda, N. Y.

American Packaging Techniques Aid in Europe's Aerosol Growth

THE introduction of American packaging concepts and techniques is the principal reason for the rapid development and expansion of the European aerosol market, according to George M. Factor, vice-president of Helene Curtis Industries, Inc., Chicago.

Mr. Factor, who recently returned from an extensive tour of western European aerosol production facilities, said that despite the lack of mechanical equipment, materials and related components essential to its development, aerosol packaging has made rapid advances in the past 18 months.

George M. Factor

These advances have spread to marketing, Mr. Factor added, with the growing practice of preselling toiletries to women through advertisements in newspapers and magazines. Previously, aerosol marketers had sold their lines for use in beauty parlors. These brands were then sold for home use through personal recommendation.

As for the European aerosol manufacturer, Mr. Factor explained that he is faced with numerous production problems very much different from those encountered by his American counterpart.

"For example," he said, "the proper type of valves very often in the past were not readily available in Europe until several years after they were in common usage in the United States. Solvents essential for formulation of many products were not readily available, and in many cases the proper propellants still had to be developed. Containers were a problem in the beginning and still are in many European countries inasmuch as metal cans of the exact specifications required for holding pressurized products and resisting corrosion are not easily obtained.

Additional difficulties in making and marketing aerosols in Europe cited by Mr. Factor are protective trade barriers raised by individual countries. Revenue laws in many European nations are a source of numerous indirect taxes. Alcohol carries a substantial tax, which limits its use in aerosols to higher price products and thus reduces their sales potential.

Another limiting factor faced by the European aerosol producer and marketer is the choice of containers. High protective duties on imports of containers limit sizes and styles in many countries since the manufacturer of containers has a virtual monopoly in his own country. He is thus unwilling to modify his machinery to make containers specifically designed for aerosol use unless he can be assured of steady and substantial production, to recover the costs of retooling. Unfortunately, few countries in Europe have a market large enough for an aerosol producer to provide the container maker with these assurances.

In France during the past year, Mr. Factor pointed out, there has been an increase in the use of plastic-coated bottles for aerosol hair sprays and colognes. Because of the metal can problem in France, bottles often prove the most practical aerosol container.

In summary, Mr. Factor pointed out that the sharp lines of demarcation separating one European country from another on ethnic and political grounds had their counterparts in economic trade barriers. This, plus the absence of a so-called European "mass market," but rather a series of markets varying in size and having different characteristics and tastes, precludes the rapid acceptance of a development so complex as aerosol packaging. Nevertheless, the trend of the past 18 months has been towards increased aerosol production.

Mr. Factor added that his own firm, through its manufacturing associates in Europe, has played an important role in the development of aerosols in the cosmetic industry there. As a result of this relationship, which has provided the European aerosol producer with technical assistance, material and mechanical equipment, Helene Curtis aerosol products are now being marketed in all countries of western Europe.

European Aerosol Meeting

(*From Page* 125)

majority favored such promotion, the representatives of nationally advertised brands were in favor of continuing to give prominence to their brand. The suggestion that the group should adopt seals of approval caused much controversy and was dropped. Safety and other vital subjects received attention.

Practical outcome of this preliminary meeting was the formation of the working committee including representatives of supplier and consumer industries, seven from Germany and three from Switzerland, one of the latter being W. G. Delmore of Precision Valve International in Zurich. At its first meeting on Nov. 27 the working committee discussed a number of basic questions.

What aims should an aerosol trade group pursue? Best possible results achieved with the smallest possible organization,

R. W. Thomson (right), president, Thomson Chemical Company, Lima, Ohio, and H. V. Jacoby, sales and plant manager (standing), discuss future chemical requirements with C. J. Farcasin, Wyandotte representative.

"Wyandotte products and technical service have aided us materially"

—reports R. W. Thomson, president, Thomson Chemical Co.

"From my extensive background in the chemical industry, I know how important technical service is to the many facets of our business . . . I also know good technical service when I see it. Based on our 10 years' close contact with Wyandotte, we know their technical service is most helpful.

"*In fact, we credit Wyandotte technical service with aiding us materially in bringing our products up to their present high efficiency.*

"Wyandotte products are also exceptional. For example, since 1947, we have used Wyandotte Carbose* exclusively in our famous LAUNDR-EEZ® to help make clothes wash whiter and brighter . . . it makes clothes rinse better, too. And due to the over-all qualities of Laundr-eez, it is excellent for hand dishwashing and other household tasks like cleaning stoves, refrigerators, painted walls and woodwork.

"We have thousands of customers who say Laundr-eez is the greatest all-purpose detergent they've ever used. What's more, they tell us it goes farther . . . stretches their cleaning dollars.

"Little wonder we're proud to say that we buy Carbose, Kreelon*, Soda Ash, and Bicarb, as well as other ingredients, from Wyandotte."

If service and satisfaction weigh well with you, why not call in a Wyandotte representative and discuss your requirements with him? It could be the beginning of a pleasant customer-supplier relationship that could profit both of us by working together over the years. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

*REG. U.S. PAT. OFF.

Wyandotte
CHEMICALS
MICHIGAN ALKALI DIVISION

Pacing Progress with Creative Chemistry

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA
CHLORINE • MURIATIC ACID • CALCIUM CARBONATE
CALCIUM CHLORIDE • CHLORINATED SOLVENTS
GLYCOLS • SYNTHETIC DETERGENTS • OTHER ORGANIC AND INORGANIC CHEMICALS

should be the foremost purpose. This eliminates for the moment any joint advertising project. No just distribution of cost is feasible and the brand names intend to pursue their own promotions. However, individual brand advertising is helpful to the industry as a whole. Immediate goals include: solution of urgent technical problems; dissemination of aerosol ideas from abroad, especially from the United States; contact with authorities and institutions which may be interested in aerosols; formation of an information center for press, radio and television; contacts between all well established and progressive pressure packaging houses in Germany and bordering countries; working arrangements with similar groups in other European countries and overseas; study of possible group efforts in public relations and advertising.

A report describing the activities and nine years' history of the Aerosol Division of the Chemical Specialties Manufacturers Association confirmed the committee in its decision to defer group advertising and to concentrate on information and exchange of technical know-how.

Adoption of a constitution and by-laws was not considered desirable for the present. A board of directors will be formed and a business office will be set up which will also serve as information center. Special problems will be handled by task groups. After one year's informal activities the most suitable legal form will be adopted which will enable the trade group to represent its members officially in negotiations with the authorities, etc.

Membership is to be as broad as possible. Manufacturers of all components of the pressure package as well as representatives of firms marketing their products in aerosol packages.

Urgent questions scheduled for priority include the formation of a technical committee to be composed of representatives of custom fillers and all supplier industries. It is to consider terminology, standardization, corrosion, test methods, liability, other legal aspects, etc. A business office and information center is needed to direct the group's activities and edit the monthly news letter.

For the present the provisional business office and information center will be the responsibility of F. H. Hans, manager of the Frankfurt office of Pegasus International Corp., New York, who will place his facilities and connections at the group's disposal.

—★—

V. J. Halaska Retires

V. J. Halaska, president of Acme Chemical Co., Milwaukee, since 1916 resigned effective Dec. 31. Mr. Halaska, who also was a director, is succeeded as president by his son, John V. Halaska, who will also serve as general manager. Other officers of the company include George J. Halaska, vice-president, Mrs. M. G. Nellen, secretary-treasurer, Miss L. Wagner, assistant treasurer, and Mrs. B. Love, assistant secretary. The board of directors is composed of George J. Halaska, who was appointed to the post last month, John V. Halaska and Mrs. Nellen.

Robert J. Roberts, right, New York sales representative of Emery Industries, Inc., Cincinnati, newly-elected president of the Salesmen's Association of the American Chemical Industry, accepts congratulations from his predecessor, Vincent L. Rebak, Grace Chemical Co., New York. Other officers selected for 1958 include James E. Spencer, New York branch manager of Harshaw Chemical Co., Cleveland, vice-president, George W. Poland, E. M. Sergeant Pulp & Chemical Co., New York, treasurer, and Preston F. Tinsley, Westvaco Chlor-Alkali Division of Food Machinery and Chemical Corp., New York, secretary.

SAACI Nominates Roberts

Robert J. Roberts, New York sales representative of Emery Industries, Inc., Cincinnati, has been selected by the nominating committee to be president of the Salesmen's Association of the American Chemical Industry, Inc., New York, for 1958.

The committee also chose James E. Spencer, New York branch manager of Harshaw Chemical Co., Cleveland, as vice-president. George W. Poland, E. M. Sergeant Pulp & Chemical Co., New York, was nominated as treasurer and Preston F. Tinsley, Westvaco Chlor-Alkali Division of Food Machinery and Chemical Co., New York was chosen by the committee for the position of secretary.

In addition, the following members have been nominated for 1958 as directors: Arthur C. Curran, Meer Corp., New York; Neal M. Draper, Solvay Process Division of Allied Chemical & Dye Corp., New York; Arthur R. Kavaler, *Oil, Paint and Drug Reporter,* New York; S. F. Teague, Jr., Monsanto Chemical Co., New York; and M. Testa, Jr., Shell Chemical Corp., New York.

New D&O Perfumes

New spray-dried perfumes designed for use in powdered bleaches, dry detergents, soap powders, household and specialty cleansers, and related products, were developed recently by Dodge & Olcott, Inc., New York. Trade-named "Fragrance-Seal," the new materials are said to have an indefinite shelf-life and be especially suited for use in chlorine bleaches. The new perfumes are the result of a new technique in spray-drying and formulation, developed in the D&O product development laboratories. A full-length feature story giving details of the new processes appears on page 135 of this issue.

★

Goren in New Post

Emanuel Goren has been named manager of the Lehn & Fink Division of Lehn & Fink Products Corp., New York, it was announced recently by Edward Plaut, president. He will direct the division's overall administration, including advertising, sales, merchandising and promotion. Mr. Goren formerly was advertising-merchandising manager for the division. He succeeds O. Glen Kennedy, who recently resigned. Mr. Goren came to Lehn & Fink in 1952 from Supplee-Wills-Jones Co. of Philadelphia. He was merchandising manager for four years before he was named to his most recent post.

Emanuel Goren

★

Miller Advances Stewart

Frank B. Stewart has been named general manager and executive vice-president of Miller Products Co., Portland, Ore., manufacturer of agricultural chemicals. He succeeds Roy E. Miller, who remains as president and board chairman. Mr. Stewart previously had been assistant general manager and vice-president. He joined the company in 1946.

Frank B. Stewart

May We Put Some in Your Hands?

The Century Brand Oleic Acids pictured above have the following properties:

	Century 1050 L P White Oleic Acid	Century 1010 Distilled Oleic Acid
Maximum color, Lovibond	5Y/0.5R—5¼"	15Y/3R—1"
Acid value	197—203	195—201
Saponification value	198—205	197—203
Unsaponifiable content	1.5% max.	2.0% max.
Polyunsaturates	3% max.	

We would like you to see our Oleic Acids and compare them critically with other competitive products, so you may fully appreciate Century Brand quality. We invite your comparison of Century Brand Oleic Acids because only you can realize their advantages in *your* products.

A request to Dept. H-30 for samples will receive prompt attention and we will welcome the opportunity to put these better products in your hands.

HARCHEM CENTURY BRAND

HARCHEM DIVISION

WALLACE & TIERNAN, INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
IN CANADA: W. C. HARDESTY CO. OF CANADA, LTD., TORONTO

Leo Miles

Miles to Geigy

Leo Miles has joined Geigy Agricultural Division of Geigy Chemical Corp., Ardsley, N. Y., as sales representative for the company's "Simazin 50W" herbicide. Mr. Miles previously was a field representative in New York and New England for U. S. Borax and Chemical Corp., New York.

★

Oronite Names Hathaway

Election of Norman E. Hathaway as director and vice-president of marketing of Oronite Chemical Co., San Francisco, was announced recently by T. G. Hughes, president. Formerly general sales manager, Mr. Hathaway succeeds Milton L. Baker, who retired Dec. 1. Mr. Hathaway joined Oronite, a subsidiary of Standard Oil Co. of California, in 1954. Prior to this, he was director of the chemical and rubber division of the business and defense services administration, United States Department of Commerce.

Norman E. Hathaway

★

Victor Advances Brower

Donald G. Brower has been elected vice-president in charge of research for Victor Chemical Works, Chicago, it was announced recently by Rothe Weigel, president. Mr. Brower formerly was manager of research.

Allan L. Ritch Retires

Allan L. Ritch, sales representative for Polak & Schwarz, Inc., New York, for more than 18 years, retired Dec. 31. During this period, he had represented the company's lines of essential oils and fine chemicals in metropolitan New York and parts of New Jersey.

A veteran of 32 years in the essential oil field, Mr. Ritch previously had served with the

M. ARGÜESO & CO. INC.

WAXES

Importers and Refiners

CARNAUBA • OURICURY • CANDELILLA

Crude - Refined - Bleached - Flaked - Powdered

•

MAMARONECK REFINED BRAND

Vegetable Waxes

•

CERESINS - OZOKERITES

PALM WAXES - RESIN BLENDS

Cerita INDUSTRIAL WAXES

Compounds and blends made to your specifications

M. ARGÜESO & CO. INC.

442 Waverly Avenue, Mamaroneck, N. Y.

Mamaroneck 9-4746 — Cable MARGUESO

Refinery: Mamaroneck Chemical Div., Mamaroneck, N. Y.

CERITA WAXES ®

specialized
for
your
cosmetics . . .

van dyk's
surfactants

CERASYNTS
EMULSYNTS
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aromatics division of Naugatuck Chemical Co., New York. Before that, he was employed as a salesman with Heine & Co., New York, a position he held from 1925 to 1938.

—★—

Hedley Profits Up 29%

Thomas Hedley & Co., Newcastle-upon-Tyne, British operation of Procter & Gamble Co., reported in its annual statement a 40 per cent increase in productivity over the past ten years. Profits in the past year amounted to nearly one million pounds after taxes, representing an increase of about 29 per cent over last year's figure.

In their statement the directors attribute the excellent balance sheet to four major factors: improvement in productivity; good packaging technique which has resulted in better cartons at no increase in price; rationalization of engineering requirements which has saved many thousands of pounds worth of plant and equipment once considered necessary; and good employees.

One result of these efforts, the statement points out, is that the price of "Tide" detergent is the same as it was six years ago, while the product itself has been steadily improving over that period. A new soap powder, "Fairy Snow," is being launched nationally. Exports are being kept up at the rate of one shipload a week to 50 different markets. Research cost last year amounted to £700,000, the highest in Hedley's history.

All profits after taxes, nearly one million pounds, are being paid out in dividends this year, the report says, to compensate shareholders for "the very inadequate returns over the 26 years since 1930." But undistributed profits retained still total nearly five million pounds. Capital employed is over nine million pounds.

P&G's international group, of which Hedley is a member, made three million pounds more profits after taxes in the past year than in the previous 12 months' period. Total amounted to £24,216,920.

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PLEXENE SPECIAL — with no ferric iron present, one gram chelates 120 mg of $CaCO_3$ at pH 11.

One gram of **PLEXENE SPECIAL** *chelates the following amounts of ferric iron*

at pH 10 . . . . . 54 mg
at pH 9 . . . . . 68 mg
at pH 8 . . . . . 74 mg

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Chemicals for Difficult Processing

Photographs above taken at annual fall reception of Givaudan-Delawanna, Inc., held recently at the University Club, New York, include: Top, left to right, Leopold Safrin, Lightfoot Co., Hoboken, N. J.; Joseph Hosey, John T. Stanley Co., New York; Elmer Laverty, Lightfoot; Frank Finlay, Stanley; and Benjamin Adams, Stanley. Shown in bottom photo are: P. Bouillette, Givaudan; Max Luthy, Givaudan; Jean Martin, Martin-Vaaler Consultants, New York; E. R. Durrer, Givaudan; Andre Givaudan, L. Givaudan & Cie, Geneva, and Leon Givaudan, Companhia Brasileira Givaudan, Sao Paulo, Brasil.

Givaudan Reception

The annual fall reception and Christmas Party of Givaudan- Delawanna, Inc., New York, was attended by more than 300 members of the soap, detergent, aerosol, cosmetics and related industries. The event was held recently in the University Club, New York. Officials of the Givaudan organization attending the reception included Andre Givaudan of L. Givaudan & Cie, Geneva, and his son, Leon Givaudan of Companhia Brasileira Givaudan, Sao Paulo, Brazil.

★

New Wyandotte Waxes

Two new waxes especially suited for use on light-colored floors were developed recently by the J. B. Ford Division of Wyandotte Chemicals Corp., Wyandotte, Mich. Called "Lumex" and "Raltec," the products may be used on all types of floors and are said to be slip and scuff resistant.

Officers and salesmen of Coastwide Supply Co., Seattle, Wash., are shown on recent visit to Racine, Wis., plant and laboratory facilities of S. C. Johnson & Son, Inc. Discussing effects of insecticides in the Johnson entomology laboratory are, left to right, Donald Ives, Frank Swanson, vice-president and general manager of Coastwide, Frank Akiyoshi, H. Johnson, Eugene Mace, Johnson entomologist, and Cecil Swanson, president of Coastwide.

TGA Section Meets

(*From Page* 63)

"Further Laboratory Studies of Potential Anti-Seborrhoeic Agents" were reported by Dr. Irwin I. Lubowe, New York Medical College, Metropolitan Hospital Center. A recent relative increase of Seborrhea of the scalp has been observed. Disturbances of the function of the pilo-sebaceous apparatus are associated with this disease. This condition in turn may be caused by hormonal imbalance, impaired metabolism and nutrition, biochemical changes of cutaneous tissues of the scalp, increased bacterial flora, and the incautious use of mild irritants and sensitizers.

Four methods of application and utilization of anti-seborrhoeic preparations are: 1. preshampoo application containing detergents and keratolytic compounds; 2. medicated shampoo incorporating active keratolytic ingredients; 3. antiseptic scalp lotion which contains antiseptics and stimulants; and 4. after-shampoo rinse based on a quaternary ammonium compound.

Bis-lauryl trimethyl ammonium polythionate was found effective in reducing the bacterial population resident on the scalp of seborrhoeic patients. Decrease in bacterial colonies and clinical relief were found to be closely related.

"Use of the Patch Test in Estimating Hazards to the Skin," a contribution by Harry L. Rubenkoenig and Robert A. Quisno, Hill Top Research Institute, Inc., Miamiville, O., stressed the importance of supplementing screening tests on animals by patch tests on humans.

Principal skin effects of interest in safety testing of personal products are primary irritation, skin fatigue, and sensitization. The repeated insult patch test procedure is recommended by the authors for simultaneous evaluation of all three hazards.

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New Franklin Rug Shampoos

Development of two new products – an anti soil rug shampoo and a carpet and upholstery shampoo – were announced recently by Franklin Research, 5134 Lancaster Ave., Philadelphia 31. A clear odorless shampoo, the rug cleaner contains "Ludox," by du Pont, and is said to be safe for use on all fast-color rugs and carpets of wool, cotton, rayon, nylon or blends.

"Franklin's" carpet and upholstery cleaner is designed for use on rugs, carpets, upholstery, slip covers and tapestries. It may be diluted with up to 12 to 16 parts of either warm or cold water and like its companion product is suitable for use on fabrics of wool, cotton, nylon or rayon. Both products come in pint, quart and five gallon containers and 55-gallon drums.

—★—

Perfumery at Rutgers

Faculty members of Rutgers University, Brunswick, N. J., and representatives of the New Jersey perfume, soap, and toilet goods industries met recently to discuss the curriculum of the second semester evening course in perfumery and essential oils. The new course will meet Wednesday evenings from seven to nine thirty at 40 Rector Street, Newark. During the current first semester the course deals with terpene chemistry and is being given by Prof. Donald B. Denney at Rutgers' Newark campus. Next semester, the course will be taught by Steffen Arctander, perfumer at Colgate-Palmolive Co., Jersey City, and will cover basic chemistry of aromatic materials and practical application of perfume ingredients. Each class will include a lecture period followed by a laboratory session.

The luncheon meeting at which these decisions were taken was attended by the following members of the industries concerned: George Fuller and S. Arctander, Colgate Palmolive Co.; A. T. Fiore, Givaudan-Delawanna, Inc.; Philip C. Burnham, Hoffman-LaRoche, Inc.; Pierre Delamont, Firmenich, Inc.; Richard A. Markus, Leonhardt Foundation, Inc.; Fred C. Theile and O. L. Marton, Shulton, Inc.; William C. Meluch, Trubek Laboratories, Inc.; Ernst T. Theimer, van Ameringen-Haebler, Inc.; C. K. Wellenkamp, Verona Chemical Co. Rutgers was represented by P. A. van der Meulen, director of the school of chemistry, D. B. Denney, and S. Ulrich. S. B. Penick Co. and Norda Essential Oils and Chemical Co., who have also given their support to the project, were unable to send representatives to the meeting.

The New Jersey perfumery industries have contributed a sum large enough to enable Rutgers to offer a graduate course in perfumery and essential oils for the benefit of its members and in the hope of attracting young chemists into the field.

—★—

Tall Oil Contest

Entries are now being accepted in the 1958-59 Tall Oil Contest, sponsored by the Tall Oil Division of the Pulp Chemicals Association, New York. Purpose of the competition is to encourage publication of papers based on original research leading to new and improved applications of tall oil or tall oil products. Grand prize is a cash award of $500. Additional prizes of $250 and $100 will be awarded for runnerup manuscripts.

The work may concern itself with the chemical, physical or physiological properties of tall oil, or with properties of tall oil-containing or tall oil-derived materials. It also may deal with applications which are currently or potentially of value to industry or the general public, or with scientific principles or procedures likely to stimulate future application.

The contest closes Sept. 1 of this year. Originality in extending the application of tall oil into new fields of usefulness will receive special consideration. Further information may be obtained from the awards committee, Tall Oil Division, Pulp Chemicals Association, 122 East 42nd St., New York 17.

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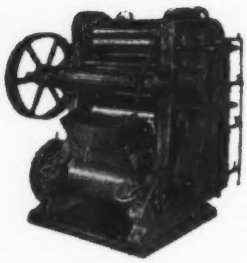

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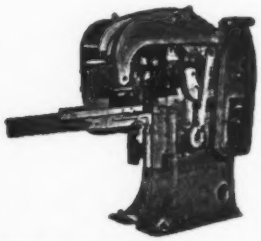

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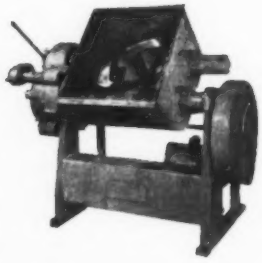

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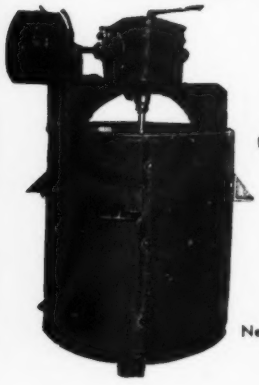

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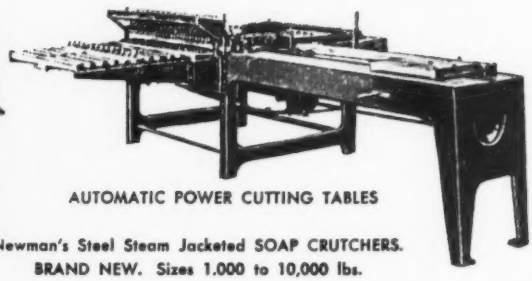

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Chemist Wanted: Middle-western manufacturer of basic detergents, soaps, floor finish requiring services of experienced chemist. Our employees know of this ad. Address Box 944, c/o *Soap*.

Salesman Wanted: To call on Northeast industrial & jobbing trade. Address Box 951, c/o *Soap*.

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Machinery For Sale: Houchin 4″ Plodder, motor driven 1-½ HP 2/60/22/440 880 RPM in very good condition. Address Box 949, c/o *Soap*.

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New Patents

(*From Page* 143)

two by gradually adding the acid to an agitated mass of the soapstock at about 32° C., maintaining the acidulated soapstock in an agitated condition at about 32° C. for a period of time after acid addition has been completed, allowing the mass to stand for a substantial period of time at about 38° C., removing the clear oil from the sludge which thereupon settles out, washing to remove water-soluble products of the acidulation, and then distilling off the fatty acids.

—★—

Du Pont Names Wilson

Arthur E. Wilson has been appointed New York sales representative for the industrial chemicals section of the polychemicals department of E. I. du Pont de Nemours & Co., Wilmington, Del. He will handle sales of "Lorol" fatty alcohols, methanol, chemical urea, and related chemicals.

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Adrien C. Pelletier
Presides at Jan. 24 a.m. session

Frank J. Pollnow, Jr.
Chairman, Industrial Division.

A. Scott Pattison, Secy.
Fatty Acid Producers Council.

Soap Industry Meets

(*From Page* 39)

group in a talk entitled "The Association Promotes Household and Industrial Cleanliness." Striking population changes are the subject of a talk, "Velocity of Change in Our Markets and Population," by Arno M. Johnson, vice-president, J. Walter Thompson Co., New York advertising agency. Dr. Harry Deane Wolfe, former head of the market research department of Colgate-Palmolive Co., New York, and now managing director of Behavioral Science Research, Inc., discusses the subject, "Is Motivation Research the Beginning or the End?" The morning session closes with a report on "Management Opportunities in a Changing Economy," given by Samuel L. H. Burk, Rogers, Slade & Hill, New York management consultants.

Howard J. Morgens, president of Procter & Gamble Co. and a member of the board of directors of the Soap Association presides at the Friday, Jan. 24, luncheon, which features an address by Roy E. Larsen, president of Time, Inc. Mr. Larsen will discuss "A Business Man's View of American Education."

The annual business meeting of the Soap Association, open to all members, takes place immediately following lunch on Jan. 24. E. B. Osborn, AASGP president, will preside. In addition to the report of the nominating committee, of which A. W. Schubert of Emery Industries, Inc., Cincinnati, is chairman, Roy W. Peet, manager and secretary of the association, presents his annual report. Nils K. Dahl, general manager of John T. Stanley Co., New York, and association treasurer will make his report at this time. The final business of the session is the election of the board of directors.

New officers are elected at the board meeting which follows shortly after the general membership meeting.

Concluding the convention will be a reception (6:30 p.m.) and dinner (7:30 p.m.) in the grand ballroom of the hotel, Friday evening, Jan. 24. This year's entertainment will be produced by the American Broadcasting Company, radio and television network.

Malcolm Miller
Administrative Assistant.

As Reader Sees It

(*From Page* 31)

of a bar of soap having a core of wood or other material with a specific gravity lighter than water. As we pointed out in that item, the idea goes back at least 20 years to the late Dr. Jones of R. A. Jones & Co., Covington, Ky., soap press firm. He developed several hollow shells for toilet soap particularly so that the small hotel size could be made two or three times larger with the same amount of soap and also to float. Ed.

—★—

Firmenich Names Morrish

Edward P. Morrish has been elected vice-president in charge of technical liaison for Firmenich, Inc., New York, it was announced recently by Charles C. Bryan, president. For the past 10 years, Mr. Morrish had been technical director. Before that, he was chief of the cosmetic section of the Office of Price Administration.

Edward P. Morrish

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Coming Meetings

American Oil Chemists Society, 49th annual meeting, Peabody Hotel, Memphis, Tenn., April 21-23; short course on soaps and syndets, Princeton Inn, Princeton, N. J., July 14-18.

American Society of Perfumers, monthly meeting, Advertising Club, New York, Feb. 19.

Association of American Soap & Glycerine Producers, 31st annual convention, Waldorf-Astoria Hotel, New York, Jan. 22-24, 1958.

Chemical Specialties Manufacturers Association, 45th annual meeting, Commodore Hotel, New York, Dec. 9-11; 44th midyear meeting, Netherland Hilton Hotel, Cincinnati, May 19-21.

Compressed Gas Association, 45th annual meeting, Waldorf Astoria Hotel, New York, Jan. 20-21.

Entomological Society of America, annual meeting of southwestern branch, Shamrock Hilton Hotel, Houston, Tex., Feb. 10-11.

Industrial and Building Sanitation Maintenance, third show and conference, Sheraton Philadelphia Hotel and Convention Hall, Philadelphia, Nov. 3-6, 1958.

National Hotel Exposition, Coliseum, New York, Nov. 3-7.

National Pest Control Association, 18th eastern conference, University of Massachusetts, Amherst, Jan. 22-24; 22nd Purdue conference, Purdue University, Lafayette, Ind., Jan. 27-31; 18th southern conference, Washington-Youree Hotel, Shreveport, La., Feb. 4-5.

National Sanitary Supply Association, 35th annual convention and trade show, Coliseum, New York, Feb. 22-25, 2nd western trade show and conference, Fairmount Hotel, San Francisco, Oct. 19-21, 1958.

Packaging Machinery & Materials Convention, Convention Hall, Atlantic City, N. J., March 25-28, 1958.

Plant Maintenance & Engineering Show, 9th annual exposition, International Amphitheater, Chicago, Jan. 29-30.

Salesmen's Association of the American Chemical Industry, annual meeting, Commodore Hotel, New York, Jan. 21; golf outings, May 20; June 26; July 22; Aug. 19; Sept. 18.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, Feb. 11; March 6; April 8; annual outing, Shawnee Inn, Shawnee, Pa., May 26-28.

Toilet Goods Association, 23rd annual convention, Poland Spring House, Poland, Me., June 25-29; scientific section, Waldorf Astoria Hotel, New York, June 5.

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Tale Ends

CONSENSUS of opinion . . . that the aerosol exhibit at the CSMA meeting in Hollywood Beach, Florida, last month was by far the best in the five-year history of the aerosol packaging contest. To Fred Lodes, chairman of the committee and to Joe Tomlinson of General Chemical go the credit for this finest of aerosol exhibits. Judging from the crowds who visited the exhibit of entries and winners in the 1957 contest, their efforts really paid off.

* * * * *

The battle royal for the American dentifrice market continues apace. Latest addition to the melee is Lever's "Stripe" which swings into national distribution this month. The stuff comes out of the tube looking like a pink and white striped candy Christmas cane,—has a mint flavor and contains hexachlorophene. It is being pushed with the usual advertising and publicity fanfare. What with P & G's "Gleam" really going to town saleswise, 1958 could be really a tough year for some of the old-line dentifrices.

* * * * *

Of all the Christmas cards received by our editor this year, once again we doff our sombrero to the card from Ruth and Al Candy of Candy & Co., Chicago. It was the most novel and attractive. Each year, their Christmas card is a play on the family name. This year, it was a scene of two kids and a pup looking into a candy store window which was decorated with Christmas sweets. This is about the fourth consecutive year that the Candy card has taken first prize in our book.

* * * * *

Clarence Weirich, vice-president of C. B. Dolge Co. of Westport, Conn. and a former president of CSMA tried valiantly to keep it a secret, but our sleuths found it out anyway. He was recently elected president of the Westport Rotary Club. We didn't even know that the Cynic of CSMA had been a Rotary member for years. And then he pops up as prez of the Westport Club. Wonders will never cease!

* * * * *

Willie Waxheart is really setting the floor wax industry on its ear these days with his publicity stunts. Hardly a week goes by but the wax boys are bombarded with Willie Waxheart publicity. He never gives the floor wax and polish people a chance to forget him. Confidentially, Willie Waxheart is a nom de guerre for our old pal, Maurycy Bloch of the Warwick Wax Division of Sun Chemical. Willie is something of a dizzy character which Maurycy plays to perfection.

* * * * *

Recent refugees from hospital beds: Tex Trowbridge, manager of the Industrial Soap Division of Colgate-Palmolive who lives in East Orange, N. J. and Ed Drew of Lever who lives in Greenwich, Conn. Latest reports are that both are now well on the mend.

New market research outfits and field interview groups are springing up in the U.S. at the rate of two a week, says Printers' Ink. Pretty soon, there will be more market researchers finding things out about various products than there are people selling the products. Frankly, it looks like this market research thing is becoming a trifle overdone. For our dough, market research is no shortcut to success. Being old fashioned, we feel that it still takes some hard, tough selling.

* * * *

New use for aerosols, as fog dispersers. Leda Chemicals, Ltd. of London have received a patent on a method wherein cationic surface-active agents are introduced "into the fog in such a manner and in such proportions as to promote coalescence of the droplets and their precipitation as rain." So we figure, each bloke wending his way homeward in a real London fog simply carries his aerosol container of cationic detergent and uses it sort of like a flashlight.

* * * *

Scented advertising gets results, or that's what Fragrance Process Co., 73 Sullivan St., New York, 12, says in a recent mail piece. The stuff is printed on any kind of paper with a regular printing press. Coffee advertising smells like coffee; strawberry like strawberry, leather smells like leather. And for those who want it, there's a lot of other odors to perfume mail pieces or publication advertising—violet, rose, carnation and the like. You name it; they make it.

* * * *

Herman Shepherd, boss man of Aerosol Techniques, Inc., Bridgeport contract aerosol loader, was extolling the merits of aerosol packages for every conceivable product under the sun. The occasion was a radio interview during the recent CSMA convention in Florida. Shep mentioned, among other things, aerosol dispensed toothpaste. The sponsor of the program? None other than Bristol-Myers who were advertising "Ipana" in its new plastic squeeze bottle package!

Look ahead in '58...

IN your sales plans for 1958, remember that in good times or bad advertising is a positive sales builder. Advertising done today builds for tomorrow. If perchance it be in the field of detergents, soaps, cleansers, aerosols, insecticides, deodorants, floor products, automotive chemicals and other chemical specialties where you are anxious to build sales, we suggest regular advertising in

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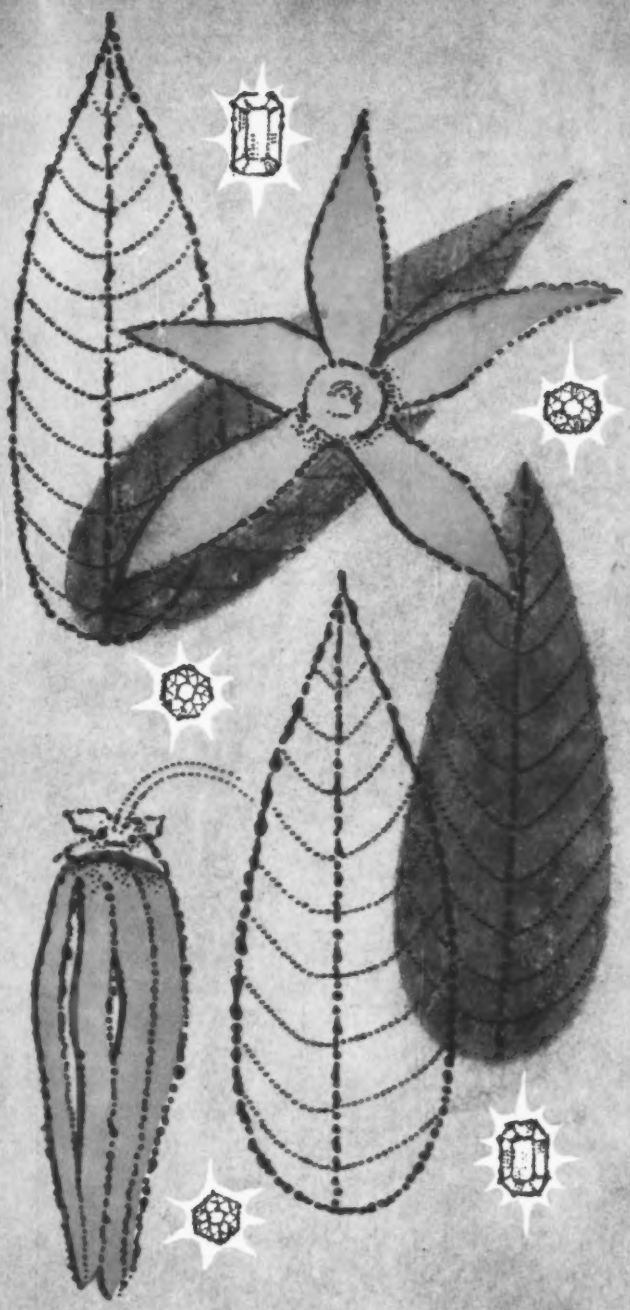

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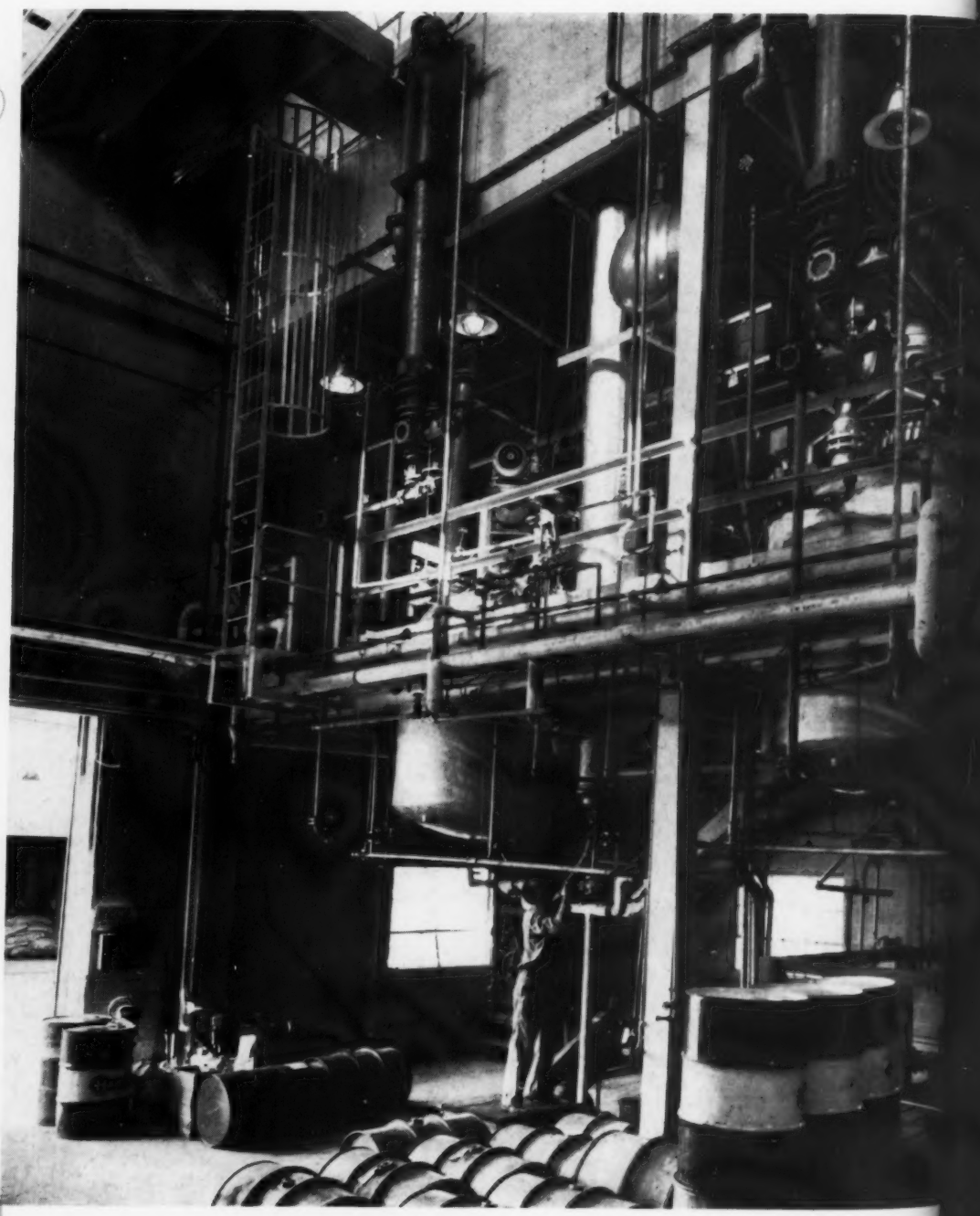

Two new chemical reactors, typical of the up-to-date equipment used at the VAH factory at Union Beach, N. J. Here aromatic materials of both natural and synthetic origin go through one of many production steps involved in producing close to 2000 fragrance materials manufactured by VAH.

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